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OUTLOOK '89

65th Agricultural Outlook Conference
U.S. Department of Agriculture
Washington, D.C.
November 29 - December 1, 1988

ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

United States Department of Agriculture
Washington, D.C.



PREFACE

These pages contain the proceedings of the U.S. Department of Agriculture's 65th annual agricultural outlook conference. Included are all papers submitted by those participating in the program and transcriptions of several speeches and panel discussions.

Outlook '89 took place at USDA headquarters in Washington, D.C. from November 29 through December 1, 1988, with about 1,200 people in attendance. More than 70 speakers and panelists took part in 33 sessions. Speakers from U.S. and foreign governments, agribusiness and agricultural organizations were well represented.

In addition to the traditional coverage of the outlook for the farm economy and major commodities, rural Americans, and food and nutrition, distinguished speakers discussed the challenges of commodity marketing, the future significance of the 1988 drought, prospects for trade negotiations and the farm policy environment facing the new administration.

Once again, a separate publication presenting charts used by speakers at the conference, Outlook '89 Charts, has been published. Audio cassette tapes of all conference sessions are also available. Information about the tapes, the chartbook and other publications of interest will be found at the back of this book.

Recipients of this proceedings will receive preliminary information on next year's conference, Outlook '90, which has been tentatively scheduled for November 28-30, 1989.

For further information, contact Raymond Bridge at (202) 447-5447.

James R. Donald
JAMES R. DONALD
Chairperson,

Outlook Conference Steering Committee

World Agricultural Outlook Board
Room 5143 South Building, USDA
Washington, D.C. 20250-3800

February 1988

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PROGRAM AT A GLANCE

TUESDAY, NOVEMBER 29

Jefferson Auditorium South Building

10:00	Opening
10:15	1 Overview of 1989 Prospects
12:00	Lunch
	Commodity Marketing Opportunities and Challenges
1:30	2 Keynote, What Tomorrow's Customers Will Want
3:15	3 Building a Marketing Strategy
4:00	4 Panel Discussion
5:00	Adjourn
5:15	Reception, Administration Building Patio

WEDNESDAY, NOVEMBER 30

Jefferson Auditorium, South Building

Patio, Administration Building

Room 107, Administration Building

Room 3501, South Building

Room 5066, South Building

8:30	5 Food Grains	8 Cotton	11 Dairy	14 Forest Products	17 Aquaculture
9:45	6 Feed Grains	9 Sweeteners	12 Fruit/Vegetables	15 Dairy Followup	18 Cotton Followup
11:00	7 Oilseeds	10 Nutrition	13 Sweeteners Followup	16 Fruit/Vegetables Followup	19 Tobacco
12:00	Lunch				
1:30	20 Livestock Outlook	23 Grains Followup	26 Transportation	29 Family Economics	
2:45	21 Livestock Outlook	24 Oilseeds Followup	27 Water Quality	Family Economics	
4:00	22 Livestock Mk'ting, and Followup	25 Rural Development	28 Conservation	30 Food Prices	
5:00	Adjourn				

THURSDAY, DECEMBER 1

Jefferson Auditorium

Patio

8:30-10:35	31 The Future Significance of the 1988 Drought	32 Farm Finance Outlook and Credit Restructuring
10:50	33 GATT/Trade Issues	
11:30	Farm Policy Challenges for the Next Administration	
12:30	Adjourn	

ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

United States Department of Agriculture
Washington, D.C.



Outlook '89, Session # (1)

For Release: (Tuesday, November 29), 1988

245 THE ECONOMIC SITUATION AND THE OUTLOOK

Wayne D. Angell
Member, Board of Governors of the [Federal Reserve System]

I am pleased to have the opportunity to talk with you today about the current economic situation and the outlook. I know it is often the practice on occasions like this for speakers to lay out in some detail their forecasts of economic prospects for the coming year. However, my approach today is going to be a little different. I want to step back from the current situation and take a broad view of how the economy has evolved over the past several years and provide--again, in broad terms--my assessment of the main forces that will be influencing the future course of the economy.

As you may know, the economic expansion in the United States turned six years of age this month, and, in many respects, those six years have witnessed an unusually successful economic performance. Real GNP--the total output of goods and services--has increased nearly 27 percent since the expansion began in late 1982. In the labor market, employment has risen 16 million, and the unemployment rate has declined to the lowest level in a decade and a half.

However, the most impressive gain of the past few years--and one that I wish to discuss in some detail--is the turnabout in inflation. Inflation had accelerated through the 1960s and 1970s and moved into the double-digit range by the end of the last decade. I believe that acceleration reflected a monetary accommodation of both the price shocks that arose in the petroleum and agricultural markets and the growth-oriented objectives that gave short shrift to the goal of price stability.

In the end, of course, we were to have neither price stability nor strong growth. As price increases accelerated, the inflation took on a dynamic of its own. Businesses increasingly attempted to meet profit rate objectives by increasing prices. Workers responded by demanding big wage increases to stay ahead of inflation, and businesses in turn had to raise prices once again to cover the hike in wage costs. Asset values, including the price of farm land, doubled and even tripled during the decade of the 1970s reflecting the present value of expected future commodity prices. Businesses and consumers began to alter their real spending and investment plans in anticipation of rising prices. And, this acceleration of inflation expectations reduced the demand for money and raised velocity, so that the observed growth rate of the money stock, in effect, understated the extent of monetary ease--policy simply was not as tight as policymakers thought it was at the time. An observation of auction markets

for both commodities and foreign currencies should have pinpointed the pervasiveness of monetary ease during this period.

Eventually, the inflation resulted in an impairment of the allocative function of the price system, as it proved increasingly difficult to distinguish changes in relative prices from pure inflation. Nominal measures of economic performance, such as corporate profits, suffered a similar malfunction. Inflation, in effect, clouded the very signals upon which our free market economy depends if it is to operate efficiently.

As the social and economic costs of inflation mounted, the goal of price stability came to occupy a more central place in the public's thinking, and economic policies shifted accordingly. At first, policy was attracted to the misguided view that wage-price guidelines would contain inflation. But, eventually, the anti-inflation effort took the form of a restrictive monetary policy turnaround in October 1979. In the ensuing three years, the nation went through two painful recessions as the inflationary tendencies that had taken hold over two decades began to be squeezed out of the economy. By 1982 the rate of consumer price inflation had been brought down to under 4 percent, less than a third of what it had been only two years before. The speed with which inflation decelerated in that period undoubtedly shifted outward the demand for money, and monetary policy thereby became more restrictive than suggested by the growth of the monetary aggregates.

Since the recovery began in late 1982, the goal of price stability has continued to occupy a central place in economic policy-making, both in the United States and in other industrial countries; and--at least thus far--the results have been generally favorable. Inflation rates in the United States remained stable in around the 3 to 4 percent range through the first three years of the expansion and then dipped further in 1986 when world oil prices caught up with an earlier and more general collapse of commodity prices.

Deflation in key parts of the goods-producing sector came close to causing a recession in 1986; second-quarter GNP was negative that year, and the average rate of growth over the second and third quarters was close to zero. Monetary reflation succeeded in avoiding a recession, but propelled a rebound in commodity prices, including oil, and contributed to an exchange rate adjustment.

This monetary stimulus contributed to both a reversal of commodity price trends including a partial rebound in the price of oil, and an exchange rate adjustment which increased import prices. Consequently, the CPI measure of inflation picked up to a 4.4 percent rate in 1987. Although the exchange value of the dollar is little changed from its year-ago level, and oil prices have weakened once again this year, inflation overall has been maintained at about its 1987 pace. This plateau in inflation in 1988 reflected the effects of the drought, together with higher prices for some imports, and a slight updrift in the rate of increase in wages. Unit labor costs have picked up in the nonfarm business sector, despite a continuation of remarkably good performance in the manufacturing sector.

Mindful of the experience of the 1970s, the Federal Reserve began a shift toward gradual restraint in 1987 and 1988 in order to ensure that the runoff in commodity prices that accompanied the decline in the exchange value of the dollar would not lead to a more deeply rooted pick-up in inflation. Growth in the money supply has been restrained, with the M2 measure of money restricted

to an annual rate of 4.8 percent over the two years ended in October of this year. This is the slowest growth of M2 over a two-year period since 1961, and compares to a 9-1/2 percent rate of growth over the first four years of the expansion.

On the whole, I would view the shift to slower money growth rates these past two years as a measured response to limit the step-up in the price level to a one-time occurrence. This action, if maintained, should forestall embedding inflation into the wage structure and should enable us to continue the disinflation process to achieve our goal of price level stability.

In assessing whether these policies will be successful in extinguishing inflation, I am encouraged by some important changes that have occurred in the United States and world economies since the 1970s. These changes, in my view, are likely to work in the direction of reinforcing anti-inflation policies. First, many other industrial countries also were deeply scarred by the inflation of the 1970s, and these countries, like the United States, are giving greater weight to the goal of price stability than was previously the case. Thus, if these policies remain intact, a worldwide surge of inflation would seem less likely than in the 1970s.

Second, the world has become a far more competitive place than it was a decade ago. Our trade sectors now face competition not only from Japan and the European Community but also from the newly industrialized economies of the Pacific Rim. And, if third-world countries, as well as China and the Soviet Union continue to move toward more market-oriented economies, then those countries probably also will gradually become more important competitors in the world marketplace.

Third, the deregulation of markets in the United States, accompanied by a reduction in the real minimum wage, has dramatically improved the competitive position of the United States in a more competitive world economy.

All told, these changes in the world and U.S. economies have important implications for the processes of wage and price determination. Profit rates in U.S. manufacturing are increasingly dependent on the success in cutting costs, due to an inability to pass price increases forward. In this environment, any forward-looking labor union or business that is exposed to export or import competition has to recognize that pushing hard for wage or price increases may be a disastrously counterproductive action if such increases result in a loss of markets and a loss of jobs.

I feel that this shift toward a more flexible wage and price structure presents an unusual opportunity to continue to restrain monetary growth to a level consistent with price stability, without engendering an increase in unemployment. I hope that we can seize that opportunity. Indeed, I believe that a reasonable goal over the medium term would be to reduce inflation by about 1/2 to 1 percentage point per year, and I believe that this can be done while unemployment remains in the 5 to 6 percent range.

Let me now turn from inflation to a discussion of some other issues that bear upon the outlook. As I noted at the start of my talk, the expansion now is six years old. All forecasters are asking: How long can it continue?

To provide some basis for comparison, the current expansion is more than two years longer than the average expansion of the postwar period. It also is the third longest expansion of this century, and the two that were longer owed their longevity partly to wartime demands during World War II period and during the Vietnam period, respectively.

However, merely because the expansion has become relatively long does not mean that it is "old" in a biological sense or that it necessarily will end soon. Indeed, this expansion is quite different in that the unprecedented rise in exchange value of the dollar in the first two years of expansion served to keep some industries, including agriculture, in a depressed condition while other sectors were growing vigorously. The combination of slower money growth served to provide a soft landing for the downward adjustment of U.S. exchange rates and resulted in a less than robust expansion in some sectors. But now that the exchange value of the dollar is in the approximate range that prevailed in 1980, a new rapid recovery is underway in manufacturing, particularly the capital goods sector. This expansion is not going to wither away by itself; rather, the expansion will end only if economic imbalances of one sort or another cause it to be cut short.

The two imbalances that are attracting attention currently--as they have almost since the start of the expansion--are, of course, the trade deficit and the federal budget deficit. In the remainder of my talk this morning, I would like to lay out my own views of the risks that these imbalances pose for the economic outlook. As you will see, I view the trade and budget deficit problems as being important but by no means insurmountable obstacles; and I therefore am relatively optimistic about the prospects for the economy.

The trade imbalance, it seems to me, posed its most serious threat to the economy back in 1986. At that time, exports were still lagging from the dollar appreciation that also was contributing to a surge in imports.

Since 1986, however, the trade situation has begun to turn around, in a fairly dramatic way. The foreign exchange value of the dollar, after peaking in 1985, has fallen substantially over most of the subsequent period; and U.S. industry, with the benefit of continued restraint on wages and costs, has regained much of the competitiveness that had been lost during the period of dollar appreciation. As the effects of this depreciation took hold, U.S. exports began to strengthen, and by 1987 a major export boom was underway. Real exports of goods and services rose 18-1/2 percent over the four quarters of last year. This year has brought further strong gains. In September, for example, merchandise exports, in nominal terms, were up nearly 30 percent from a year earlier.

With this rise in exports, the prospects in many of our tradeable goods sectors have taken a strong turn for the better. Agricultural exports have risen markedly, both in volume and in value. Industrial production began strengthening in late 1986 and has surged more recently, rising nearly 6 percent over the four quarters of 1987 and at close to a 5 percent rate so far this year. Growth of GNP, which had slowed below 2 percent in 1986, has averaged 4 percent over the 1987-88 period.

In the period ahead, I think that we shall see further substantial growth in real exports of goods and services and a slower rate of growth of real imports than in the early years of the expansion. Overall, the external sector

should be making a significant positive contribution to the growth of real GNP, maintaining the pattern of the last two years. The tradeable goods sectors should benefit significantly from this trend, and over time, the trade balance should continue to narrow from the still substantial deficit position of today.

The federal budget deficit is the other imbalance that remains an issue of much concern. In approaching this issue, I think it is first important to try to identify more precisely the nature of the threat that the budget deficit poses, as well as some areas in which the potential effects of budget deficits have been misconstrued by many analysts.

For example, I believe that the deficit is inflationary only if the Federal Reserve tries to monetize it; and I want to assure you that we at the Federal Reserve have no intention of following such a course. This does not mean, however, that the deficit is unimportant. To the contrary, there are two significant consequences. First, the U.S. budget deficit serves to lessen the economic power of the congressional and executive branches of our government. As interest on the debt rises as a percent of federal tax receipts, these interest payments crowd out discretionary spending options. This does not mean that the U.S. economy suffers a restraint, only that the government sector is restrained.

Second, the deficit does have an effect on interest rates: it causes the level of rates to be higher than would otherwise be the case and thereby causes a capital inflow or squeezes out private investment. However, in thinking about how the deficit might affect the future course of interest rates, it is important to take account of market expectations. I would argue, for example, that the current structure of interest rates already incorporates the market's expectations of how the budget deficit is going to evolve over time. Budgetary developments would therefore cause rates to change only if those developments were to alter expectations in an important way. A failure to move the deficit down as fast as the markets are expecting would likely result in higher rates, but a faster-than-expected reduction of the deficit would more than likely lead to lower rates than would otherwise be the case.

It will not be possible for Congress and the new administration to eliminate the deficit in one swift stroke. No one expects that. What the financial markets do need to see is some convincing evidence that the government still is on a course that will take it, over time, back toward budgetary balance. My own hunch is that signs of progress along the lines laid out in the Gramm-Rudman-Hollings legislation would be viewed in the markets as an acceptably rapid pace of deficit reduction. To the extent that the progress is faster than the markets might be anticipating, I believe that we would see interest rates lower than would otherwise be the case, with accompanying benefits for capital spending and other interest-sensitive sectors. The key question for our future is the decision to stay with Gramm-Rudman-Hollings, to continue plausible efforts to bring the 1990 budget deficit down to the \$100 billion requirement and, failing to reach a compromise, to leave the sequester law intact.

In summary, I personally do not believe that the imbalances that we see currently will necessarily derail the expansion. Rather, I see the period ahead as an opportunity for a combination of monetary discipline and continued progress in reducing the federal budget deficit. Together they can provide the necessary underpinnings for a continued healthy economic performance with strong

export growth. Monetary discipline will continue to be required to ensure that inflation is squeezed out of our economy. And, in the context of moderately restrictive fiscal policy, restrained money growth will still provide ample resources for a continued improvement in net exports, and continue the impetus to keep the expansion on track.

Granted, the course ahead may not work out smoothly at every point in time. But, if policymakers will continue to monitor auction market signals, the rough spots should be surmountable and a year from now, when another Agricultural Outlook Conference convenes, I rather expect that we shall be looking back at a year in which some further progress has been made in reducing the current imbalances, that we shall be looking back at the successful conclusion of a seventh year of economic expansion, and that we shall see inflation somewhat below its pace of the past two years.

ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

United States Department of Agriculture
Washington, D.C.



Outlook '89 Session #1

For Release: Tuesday, November 29, 1988

WORLD AND U.S. AGRICULTURAL OUTLOOK

James R. Donald
Chairperson, [World Agricultural Outlook Board
U.S. Department of Agriculture]

The global agricultural outlook for 1989 is highlighted by smaller crop supplies, firm demand, and higher prices. Demand for both crop and animal products will be bolstered by continued economic expansion and population growth. The 1988 drought sharply cut U.S. and Canadian grain and oilseed crops, putting a dent in world supplies. Crop prices will continue to reflect these smaller supplies early next year. But expanded output is likely in the second half of 1989. Supplies of animal products will continue to be large next year, dampening livestock price increases.

For U.S. farmers, this outlook will mean slightly higher marketing receipts than they got this year, with a little larger marketings for crops and slightly higher livestock prices. But they will be getting less in direct Government payments, and their production expenses will rise with expanded acreage and costlier production inputs. Thus, cash farm income in 1989 is likely to decline about one-tenth from the 1988 record-tying estimate of \$56-\$58 billion. Net farm income in 1989, unlike cash income, will be supported by an increase in the value of inventories and is expected to total about one-fifth above the \$38-\$40 billion estimated for this year.

The 1989 outlook favors the food shopper, even though the drought trimmed potential meat output. Meat supplies will be the second largest ever, boosted by large pork supplies and bigger poultry supplies. These large meat supplies and bigger 1989 crop output, coupled with slowly rising inflation, will mean an increase of 3 to 5 percent in food prices in 1989. This year, food prices will rise about 4 percent, reflecting higher prices for some drought-related crop foods, including cereals and bakery products, vegetable oils, fruit and vegetables.

Global Setting

At the global level, supplies of wheat, feed grains and oilseeds will be smaller in 1988/89. Production will be down mainly because of drought-reduced output in the United States and Canada. World supplies of cotton and rice will be larger, though, mainly in response to larger crops abroad.

Despite the tighter supplies, world crop consumption and trade will decline only modestly in 1988/89 for a variety of reasons: expansion in world economic activity, larger animal product output, population growth, larger crop production abroad and relatively large U.S. feed grain stocks carried over from 1987/88 (Fig. 1).

The impact of this year's reduced crops will be more evident on stocks. Global grain and soybean stocks will be worked down about one-third in 1988/89. In relation to use, world stocks will decline sharply, with 1988/89 carryover stocks representing about 2 months of use for grains and 1-1/2 months for soybeans.

In the United States, yields are sharply lower for most crops and some acreage was lost to the drought. Output may drop nearly 30 percent for grains and over 20 percent for soybeans. Demand, however, remains relatively strong in 1988/89. Also, Government feed assistance to livestock producers suffering severe drought losses will lead to some added feed use. As a result, U.S. grain and soybean stocks will be cut around 60 percent. Grain stocks at the end of 1988/89 will still represent about 2-3/4 months of use. Higher prices are indicated for wheat, feed grains, and soybeans. Prospective U.S. cotton stocks are up considerably.

U.S. farm exports will be dampened by a lower volume in fiscal year 1989. However, prices of exported commodities are expected to be substantially higher.

Next year's crops are likely to be larger, in response to expanded acreage and a recovery in yields.

Crop Production

Global crop output (including wheat, feed grains and soybeans) is projected to decline nearly 7 percent in 1988/89, reflecting a drop of nearly 30 percent in U.S. production. Canadian grain output is down one-third with drought-reduced yields. Grain crops in the Soviet Union and China have suffered from weather, while weather was generally favorable for the EC grain crop. World production of a few crops, including rice and cotton, will be larger in response to expanded acreage or improved yields in several countries (Figs. 2, 3, 4).

Global feed grain production will be down around 10 percent, primarily reflecting one-third lower output in the United States. World wheat production will hold near the year-ago level, as lower U.S. and Canadian output is nearly offset by higher yields and bigger crops in the European Community and Eastern Europe. Rice output will be up 4 percent, as yields recover in India and Thailand.

World oilseed production is expected to be down 3 percent, as the smaller U.S. soybean crop more than offsets prospective larger soybean crops in South America.

The global cotton crop is up 4 percent, mostly in response to expanded acreage and higher yields in India and the Soviet Union.

Demand Factors

Global economic conditions in 1989 likely will not quite match 1988. Economic growth should benefit from increased net exports by the United States and several developing countries, but growth rates in many countries still will be held down by trade imbalances, budget deficits, high debt loads, and lack of financial resources for capital investment.

Economic growth in developing countries should show moderate improvement, including several countries in Latin America, Africa and the Middle East. The fastest growth again will be in East Asia, where agricultural imports have been rising with expanding consumer demand, especially for meat.

World meat output is expected to increase nearly 1 percent in 1989, with expanded output of poultry and pork offsetting less beef and veal. Poultry meat production is expected to be up about 3 percent, with output expanding in most countries. Pork output may be up 1 percent, with larger production in China and a little more output in the United States. This larger meat output should mean an increased level of feed use.

The U.S. dollar strengthened in the first half of 1988, but has weakened in recent months. A lower dollar should result in larger exports, smaller imports, and expanded domestic investment.

Consumption and Trade

Global consumption of wheat, feed grains, and soybeans is expected to be down about 1 percent in 1988/89, reflecting tighter supplies and higher prices.

In 1988/89, global trade in these crops will decline about 3 percent because of higher prices and reduced supplies, particularly for the United States and Canada. Trade in wheat and soybeans will be down, but coarse grain exports will be boosted by larger Soviet imports and rice trade will benefit from a larger crop.

In 1988/89, U.S. crop export volume for wheat, feed grains and soybeans is expected to fall around one-tenth, led by a drop of around 30 percent for soybeans. Soybean exports will fall because of larger foreign production of other oilseeds and expanded soybean output in South America. The U.S. share of world wheat trade should improve, but exports will decline as total trade shrinks. The U.S. share of world cotton trade and U.S. exports will decline sharply (Figs. 5, 6, 7).

The total value of U.S. agricultural exports in the coming year will benefit from higher prices. In fiscal 1987/88, the value of U.S. agricultural exports rose around one-fourth in response to both higher prices and a larger volume (Fig. 8). U.S. agricultural imports were slightly above the year-earlier level.

Crop Stocks and Prices

With smaller world supplies and only modestly smaller consumption, global grain stocks will decline to about 268 million tons, nearly one-third below beginning stocks. Declines will vary from 4 percent for rice to 54 percent for corn. Soybean stocks will be down 30 percent. In sharp contrast to the other crops, cotton stocks are projected 3 percent higher.

Global stocks of grains and soybeans are being pulled down primarily by the decline in U.S. stocks, caused by reduced carryin stocks and smaller 1988 crops resulting from the U.S. drought (Figs. 9, 10, 11). The projected 50-percent increase in U.S. cotton stocks is due mainly to reduced exports, stemming from market losses to competitive growths.

U.S. farm prices are responding to the outlook for lower stocks. Price gains will be substantial for wheat, feed grains and soybeans.

Commodity Outlook

The global crop outlook is for smaller supplies, firm demand and higher prices. The world livestock and poultry outlook is for a further expansion in supplies, notably for poultry.

Wheat

The global wheat outlook for 1988/89 is highlighted by reduced supplies, lower world trade, and a further decline in stocks. Much of the decline in world supplies and ending stocks will be in the United States, but with exportable supplies also down in several of the major competing exporters, the U.S. share of world wheat trade will show a small gain from 1987/88.

World wheat production for 1988/89 is forecast down slightly from a year earlier because of a smaller U.S. crop. Foreign output is forecast up 1 percent, as larger crops in the EC, Eastern Europe and several other countries more than offset lower Canadian and Argentine production. However, foreign 1988/89 beginning stocks are down around 12 percent from a year earlier, leaving foreign supplies (production plus carryin stocks) down 2 percent. With U.S. supplies down more than 20 percent, world supplies are 5 percent below 1987/88.

The outlook for U.S. wheat in 1988/89 is for reduced production, lower carryin stocks, smaller exports and ending stocks possibly slipping to their lowest level since 1974/75 (Fig. 12).

U.S. harvested acres, at 53.3 million, are down 5 percent from 1987 to the lowest level since 1972. With yields also lower, 1988/89 production is 14 percent below 1987/88. Winter wheat production is only slightly below a year earlier, but the early and prolonged drought in the Northern Plains dropped the U.S. durum and spring wheat crops to their lowest levels since 1961 and 1969, respectively. With carryin stocks down almost a third, U.S. 1988/89 supplies are more than a fifth below a year earlier. Little change in domestic use is expected as food use continues to expand. Thus, the major factor in determining 1988/89 carryout stocks will be exports.

World wheat trade in 1987/88 rose 14 million tons to its second highest level ever, but may decline almost 12 million in 1988/89. Last year, the combined imports of the USSR and China were up 12 million tons and accounted for more than a third of world trade. A larger USSR wheat crop and higher world prices are projected to reduce 1988/89 wheat imports by the USSR and China by 10 million tons. The relatively flat world trade outside of the USSR and China is still impressive in the face of higher world prices and continued high debt in some importing countries.

Sharply lower U.S. loan rates have led to adjustments in several key exporting countries since the Agricultural Act of 1985. However, weather also played a key role this year. A drought cut Canada's production 40 percent from last year to the lowest output since 1974/75. Canada's carryin stocks were also down sharply because of reduced 1987 production and record exports. Australia and Argentina planted after wheat prices started rising sharply, spurring some expectations of larger production. However, an extended dry period sharply reduced Argentine plantings and yield potential. In Australia, planting weather was more favorable, but wheat prices were not sufficiently attractive to entice much additional acres away from other farming activities, such as wool production. Also, potential yields were recently reduced by unseasonable hot, dry weather. The EC seems to be the only major wheat exporter to have had largely favorable growing and harvesting conditions, with its production forecast up 7 percent from last year to the second largest wheat crop ever. While Canada, Australia, and Argentina will export as much as available supplies allow, the world will have to look largely to the EC and the United States for their wheat. Thus, U.S. wheat exports are estimated at 1.45 billion bushels, down 9 percent from 1987/88. However, since world trade is forecast to decline more than 10 percent, the U.S. share may be slightly above 1987/88's 41 percent.

U.S. wheat production should rebound strongly in 1989/90, spurred by higher prices and reduced acreage reduction requirements. The higher world prices should also result in larger foreign production, although the increase may be more constrained than in past years. Some of the land which has been taken out of wheat production over the last two to three years may be slow to come back into production. In some countries, such as Australia, the land has been switched to other profitable farming activities. Given the sharp fluctuations in wheat prices over the last two decades and that foreign exporters are no longer provided a relatively high price floor by U.S. loan rates, wheat producers in the foreign exporting countries may expand less than they have in the past. Thus, while U.S. wheat exports may face more competition on the world market next year, they should continue strong.

Rice

Global rice production in 1988/89 is up more than 4 percent from last season. A favorable monsoon in south and southeast Asia boosted yields from the drought-reduced levels of last year. Large crops are expected in India, Indonesia and Thailand. Heavy rains and floods reduced crop prospects in Bangladesh.

U.S. production and stocks are up from a year earlier, especially for long grain rice. U.S. rice exports totaled about 72 million cwt in 1987/88, down 14 percent from a year earlier. Tight supplies and higher prices in 1987/88 limited exports. Exports are expected to rise to a forecast 77 million cwt in 1988/89 because of larger supplies and more competitive prices. The U.S. market share is expected to rise marginally to 21 percent in calendar year 1989.

Given normal weather, global rice production should expand next year and prices decline further. Over the next several years the marketing loan program will insure that U.S. export prices are competitive. However, as long as U.S. supplies remain tight, exports will have to compete with expanding domestic use.

Feed Grains

The global feed grain outlook for 1988/89 is highlighted by reduced supplies and a further decline in stocks, especially in the United States. World feed grain trade may show its largest year-to-year gain since 1980/81, after remaining relatively flat since 1984/85. While larger supplies in several of the major competing exporters may lead to a decline in the U.S. market share, U.S. feed grain exports are forecast down only slightly and corn exports are expected to be up from 1987/88.

World 1988/89 production is forecast down 10 percent from a year earlier because of smaller U.S. and foreign crops. Foreign output is down 1 percent, mainly because of the USSR and Eastern Europe. Foreign 1988/89 beginning stocks are down around 6 percent and U.S. supplies down 25 percent, resulting in world supplies 10 percent below 1987/88.

The outlook for U.S. feed grains in 1988/89 is for reduced production, lower carryin stocks, smaller exports and ending stocks possibly the lowest level since the end of the 1983/84 drought year.

This year's corn crop, at a little under 4.7 billion bushels, is down 2.4 billion from last year (Fig. 13). While harvested acres are down 4 percent, much of the decline in production was due to drought-reduced yields. Yields are down 31 percent from 1987, the largest recorded year-to-year decline. Production of the other feed grains was also sharply reduced by the drought, although sorghum less than the others. Lower 1987 production and expanding exports dropped 1988/89 carryin stocks for corn 13 percent below a year earlier. However, carryin stocks were still the second largest on record. Higher prices will likely lead to some reduction in domestic use.

World corn trade declined slightly in 1987/88, but may rise more than 5 million tons in 1988/89. A smaller USSR coarse grain crop and world corn prices more competitive with the other feed grains and feed wheat are projected to raise 1988/89 corn imports by the USSR around 4 million tons. Some of the same factors are also expected to lead to larger corn sales to some other importers such as Japan and the Republic of Korea. Although larger corn crops and exports are forecast for several major competing corn exporters, world trade is forecast to expand more than their exportable supplies. Thus, U.S. corn exports are forecast up more than 2 percent from 1987/88. Also, unless China

increases its exports from the level of the past two years, any production problems in the Argentina and South Africa could lead to even larger U.S. corn exports.

U.S. corn production should rebound strongly in 1989/90, spurred by higher prices and reduced acreage reduction requirements. The higher world prices should also result in larger foreign production, although there are a number of factors which may lead to more constrained increases in some of the competing exporters. In Argentina, the potential expansion in corn will depend on prospective costs and returns relative to oilseeds. The South African government has reduced its support for corn produced for export. Expansion opportunities are also limited in Thailand because of land constraints and expanding domestic use. On the other hand, a return to normal weather should lead to sharply higher corn production in Eastern Europe. Also, there will likely be some expansion in the other feed grains, especially barley.

Oilseeds

Global and U.S. stocks of soybeans are dropping sharply in 1988/89, with drought reducing production in the United States to the lowest levels since 1976/77. China's crop was also reduced by drought. Production gains of 10 to 15 percent are expected in Brazil and Argentina. With favorable soybean prices compared to competing crop prices, mainly grains, area is shifting to oilseeds. Larger supplies abroad will permit the foreign crush and exports to expand, alleviating some of the normal price increase associated with a short U.S. crop.

With record supplies of other oilseed crops around the world and a short soybean crop, soybean meal use is forecast to drop by only 2 percent with most of the drop centered in western Europe and East Europe. Recent Soviet purchases of U.S. soybeans and soybean meal indicate that the Soviet Union will continue to import and consume near year-earlier levels. Many Asian countries are continuing to experience strong economic growth and will likely maintain or even expand consumption. U.S. meal use is expected to drop as hog numbers slip. Higher soybean meal prices will also cut feeding rates. Nevertheless, the reduction may be less than in 1983/84 as the decline in U.S. exports and larger availabilities abroad help support domestic use. Prices are also constrained by the weak U.S. soybean meal export prospects.

Soybean meal use in other countries may show only a slight drop overall. A decline near that for the United States is likely for EC meal use because of continuing large availabilities of other protein substitute feeds and slow growth in livestock feed units. However, many other countries are expected to maintain meal use close to year-earlier levels, including the USSR.

Soybean oil inventories will drop below this past year's record high level but remain burdensome despite the reduction in U.S. crush and oil production. Much higher imports along with above-average extraction rates are adding to U.S. supplies in 1988/89. U.S. exports are forecast to decline sharply as world vegetable oil availabilities remain at high levels. Global vegetable oil consumption is forecast to rise in 1988/89 but production gains for most oils other than soybean oil are more than enough to meet rising needs.

U.S. soybean prices are expected to show significant gains in 1988/89 as U.S. stocks are drawn down. However, gains will be moderated by the availability of larger inventories and production abroad. Inventories this fall are about 150 million bushels higher in South America and these higher levels will likely be maintained next October 1, dampening the price pressures normally associated with low inventories. In the United States, the 1988/89 carryover stocks may be the lowest since 1972/73 in terms of stocks relative to use (Fig. 14).

Looking ahead to 1989/90, higher prices for soybeans are expected to stimulate acreage and production around the globe. Larger crops are anticipated in Brazil and Argentina next spring as soybeans and other oilseeds continue to be priced favorably relative to grains, encouraging producers to emphasize oilseed production in the crop mix. In the United States, plantings may show a modest rise of 1 to 3 million acres as higher returns for soybeans along with a reduced annual acreage reduction program for grains and the 10-25 rule for soybeans act as incentives. The 10-25 rule was included as part of the Disaster Assistance Act passed by Congress earlier this fall. Producers will be able to apply to plant from 10 to 25 percent of their permitted acreage base to soybeans. A determination on the actual amount permitted will be announced by the Secretary of Agriculture following producer signups.

Cotton

Prospects for 1988/89 are for global cotton production to slightly exceed consumption. Output is projected at 84 million bales, up about 4 percent from 1987/88, owing primarily to larger crops in the Soviet Union and India. World use is projected to nearly match last season's record 83 million bales.

Weak demand for U.S. cotton, coupled with a large crop, are causing stocks to increase sharply this season to nearly double the 4 million bales specified as a goal in current legislation. While the 1988 crop is up slightly from last year to nearly 15 million bales, total disappearance is expected to decline about 16 percent to 12 million bales (Fig. 15). Increased international competition will drop U.S. exports to 5 million bales, 25 percent below 1987/88.

Assuming U.S. prices are more competitive in 1989/90, U.S. cotton is well positioned to benefit from expected larger world import demand, especially in view of reduced export availabilities overseas. Foreign export supplies are expected to be particularly tight in China, Pakistan and several smaller producing countries. In contrast, U.S. export supplies reflect large carryover stocks. Under these circumstances, the United States should be able to garner a more normal share of world trade--perhaps 25-30 percent. This compares with 21 percent during the current season, which has witnessed relatively high U.S. prices in international markets.

Livestock and Poultry

World animal-product output likely will increase slightly in 1989 following an expected rise of a little over 1 percent for this year. As in 1988, an increase in pork and poultry is expected to more than offset lower beef and

veal output. Total poultry meat production will continue to increase in most countries. World pork production is increasing this year as output rebounds in China and most of the other large producing countries show increases. Next year only a slight increase in world pork output is likely. World beef and veal production is expected to decline this year and another drop is likely in 1989. A large part of the 1989 decline is likely to occur in the United States.

Total meat production in the United States in 1989 is expected to decline about 1 percent from this year's record large output. The decline in 1989 meat production will come from the beef sector where both fed and nonfed beef output are expected to decline. Little change in pork output is anticipated and poultry production is expected to continue its upward trend.

The U.S. cattle inventory continues to decline. The January 1, 1988 inventory was at the lowest level since 1961 and the total at the beginning of 1989 likely will be down again. The cow inventory on January 1, 1988 was the lowest since 1959. With reduced cow slaughter and more heifers going into the cow herd during the last year, the indicated calf crop for 1988 is up slightly from the previous year. The lower cattle inventory has reduced the number of cattle available for feedlot placements. Also, the retention of heifers for herd replacements in 1989 likely will further restrict feedlot placements. This will result in a decline in fed cattle slaughter in 1989 and combined with further drops in nonfed slaughter will contribute to a decline in beef production (Fig. 16). The lower beef production will be positive for cattle prices and another price increase is anticipated in 1989.

Pork production is up sharply this year in response to good producer returns the past couple of years (Fig. 17). The larger output has put hog prices under strong downward pressure this year and hog prices will average \$8 to \$9 below those of a year earlier. Lower hog prices combined with higher feed costs are expected to cause producers to cut back on farrowings and this will result in year-over-year declines in pork production by next fall. As pork production increases slow next year, hog prices are expected to strengthen and the 1989 average could be up a few dollars from this year's price.

Poultry meat output continues to trend upward with both broilers and turkeys showing gains this year. Broiler producers have continued to show good returns this year despite higher feed costs. A strong demand for broilers has resulted in higher broiler prices this year. Production is expected to increase again next year and prices likely will be slightly lower than this year's average (Fig. 18). Turkey producers had poor returns last year and much of this year. This has resulted in only a modest increase in production this year compared with 1987's 19-percent rise. Production will be below the year-earlier level this fall, but it is expected to increase next year.

Egg production will decline about 1 percent this year as producers respond to an extended period of poor returns. Egg prices continue to reflect a very weak demand. Further declines in production are likely in 1989, but this should give some support to prices.

Dairy

Milk production during 1987/88 was up 2.3 percent as it rebounded from reduction induced by the Dairy Termination Program. Production has shown year-over-year increases in recent quarters, although shorter supplies and higher feed prices have dampened increases. Production in 1988/89 is expected to show little change from the 1987/88 level.

Commercial use in 1987/88 was nearly unchanged, following a few years of strong gains. Commercial use appears to be rebounding and a gain of nearly 2 percent is likely for 1988/89. With little change in production and gains in commercial use, a substantial decline is likely in government purchases of dairy products under the price support program.

Sugar

U.S. sugar production is forecast to drop 8 percent in crop year 1988/89 from last year's record level. Cane sugar production will about duplicate last year's high, but beet sugar output is off 14 percent because of the drought and some disease problems. Still, total sugar production, at about 6.7 million short tons, will be the fourth largest on record. Deliveries of U.S. sugar for domestic consumption, which had been on a 10-year slide until 1986/87's 1.5-percent gain, may expand another 1 percent this year. Substitution of corn sweeteners for sugar in the domestic soft drink industry may have run its course. Strong consumption in the first half of 1988, in the face of drought-reduced supplies, caused a 300,000-ton increase in the 1988 sugar import quota. The adjusted quota size of just over 1 million tons is still just a third of the size of the 1984 quota.

World sugar production is projected to hit its third straight record in 1988/89--forecast output of 106.8 million metric tons is more than 3 percent above last year's bumper crop. The EC, India, Thailand, Cuba and the USSR registered gains more than offsetting drought-reduced crops in the United States, Indonesia, and Eastern Europe. The potentially bearish effects of the huge 1988/89 harvest should be mitigated, however, by another record year for consumption, forecast at 107.0 million tons. The expected drawdown in global sugar stocks in 1988/89 is slight, but would represent the fourth drawdown in a row, and should help to support world prices at or above their current 9-11 cents per pound range.

U.S. Farm Income and Food Prices

U.S. commodity supplies will be smaller in the coming year, with the drought reducing crop supplies and dampening meat output. Livestock prices should average higher, while calendar-year crop prices may not match this year's if crop output recovers in 1989. To farmers, marketing receipts should slightly improve in 1989, but expenses will be up more. Consumers will have ample food supplies at only moderately higher prices.

Farm Income

Marketing receipts in 1989 should slightly exceed the \$148-\$150 billion estimated for 1988, reflecting slightly higher crop receipts from a bigger 1989 crop. Gross cash income could slip slightly from this year's \$167-\$169 billion, based on smaller direct Government disaster and deficiency payments (Fig. 19).

Production expenses likely will increase from 1988. Cash expenses will be up from \$110-\$112 billion in 1988, as the volume of inputs used expands because of bigger crop acreage and prices farmers pay average higher for fertilizer and agricultural chemicals. With a little less gross income and moderately higher production expenses, net cash income in 1989 may decline about one-tenth from this year's record-tying level of \$56-58 billion.

Net farm income in 1989 may be up one-fifth from this year's level of \$38-\$40 billion. An increase in the value of inventories because of higher crop output will add to net farm income in 1989.

Food Prices

A modest increase in food prices of 3 to 5 percent is in prospect for 1989. Relatively large food supplies, including larger supplies of poultry and expanded 1989 crop output will dampen food price gains. Also, a moderate rate of inflation, of 4 to 4-1/2 percent, will not put great pressure on food prices.

Food prices in 1988 will average about 4 percent above 1987 (Fig. 20). Above-average increases are being recorded for fruit, vegetables, fats and oils, and cereals and bakery because of drought's impact; but record meat supplies are holding down the overall food-price increase. The retail cost of a market basket of farm foods is expected to be up about 3.5 percent in 1988, with the farm value increasing 3.5 percent and the farm-to-retail price spread rising 4 percent.

U.S. Crop Production Outlook

There are three developments that point to expanded U.S. acreage for grains and oilseeds and higher yields next year: Acreage reduction requirements for Government program participation are lower, crop prices are higher, and yields usually increase following a drought year.

Acreage to Expand

In 1988, the United States set aside from production 78 million acres (Fig. 21). Of this total, 54 million acres were under annual programs and could be brought back into production rather quickly.

U.S. producers remove land from production to qualify for Government program benefits. Because of drought-reduced supplies this year, acreage reduction requirement have been lowered for most 1989 crops. For wheat, the acreage

reduction percentage has been lowered to 10 percent, from 27.5 percent (Fig. 22). The acreage reduction percentage for corn has been lowered to 10 percent, from 20 percent; and the paid land diversion has been reduced to zero, from 10 percent in 1988. However, the acreage reduction percentage for cotton has been increased from 12.5 to 25 percent.

Some 44 million acres were removed from wheat and feed grain production in 1988 under annual programs -- perhaps one-half of this total will come back into production in 1989. Soybean acreage could be up 1 - 3 million acres.

U.S. acreage expansion in 1989 will be further encouraged by this season's higher crop prices. Among the crops, season-average prices for 1988/89 will be up 40 to 50 percent for wheat, 30 to 40 percent for corn and 20 to 30 percent for soybeans (Fig. 23). The price outlook can change by next spring, of course, depending on supply and demand developments both in the United States and in other countries.

Crop Yields to Recover

No one knows at this point what next year will bring in terms of planting, growing and harvesting conditions. The weather could be favorable or unfavorable, and disease and insect damage could be light or heavy. At the same time, there are significant developments evident from examining historical yields: Crop yields usually rebound after a very poor year, at least at the national level; and there is an upward trend in productivity, with yields moving up over time.

If yields are weighted together for six major crops (wheat, rice, the 4 feed grains, and soybeans), the data show that: Yields usually rebound from severely reduced levels caused by bad weather; the increase in yields is about 1.5 percent per year; and the trend projection for 1989 shows an increase of almost 30 percent from the 1988 level (Fig. 24).

In summary, the United States will have adequate crop supplies until new crops become available in 1989 -- and these new crops should be up sharply in response to expanded acreage and higher yields.

World Economic Growth Percent

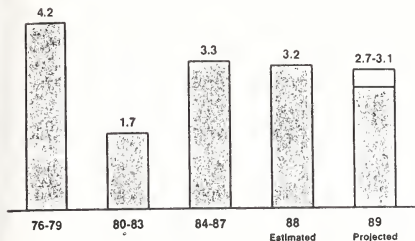


Figure 1

World Total Grains

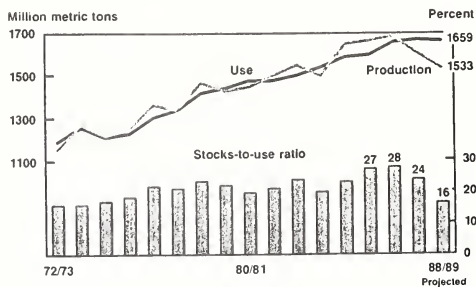


Figure 2

World Soybeans

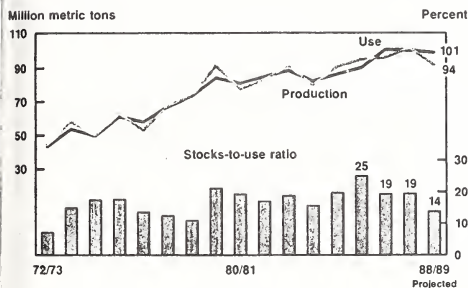


Figure 3

World Cotton

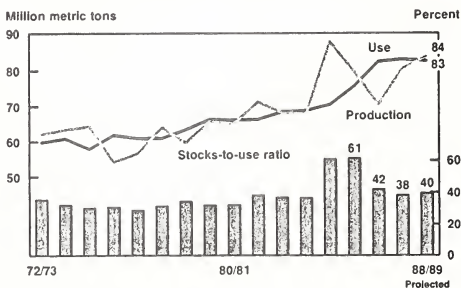


Figure 4

World Total Grain Trade

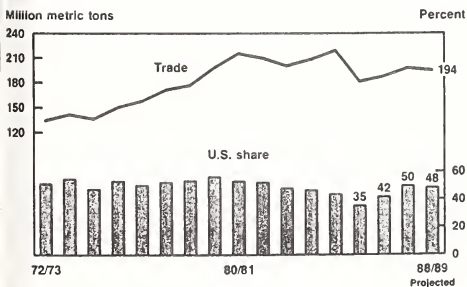


Figure 5

World Soybean Trade

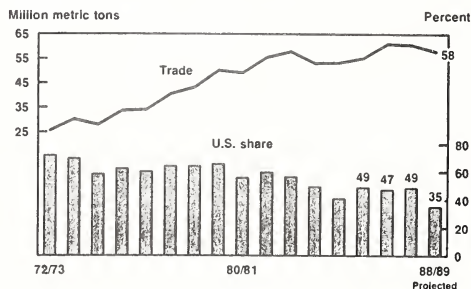


Figure 6

World Cotton Trade

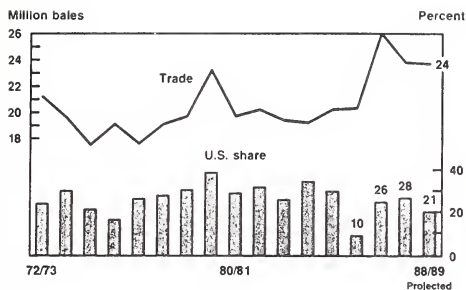


Figure 7

Three Driest Years Since 1931 May Through July

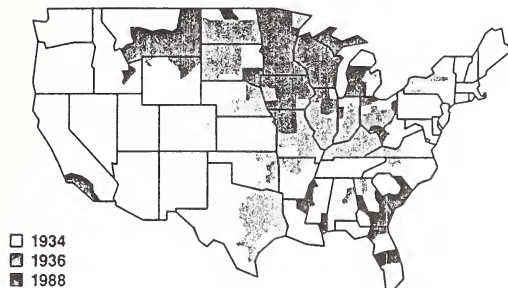


Figure 9

U.S. Agricultural Trade, Fiscal Year

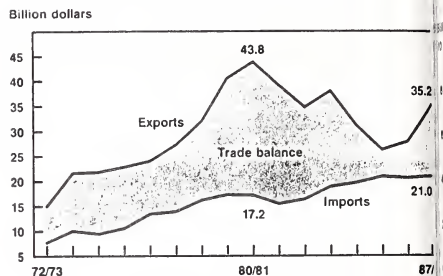


Figure 8

U.S. Crop Production

	1987	1988 June 9 Forecast	1988 Nov. 12 Forecast	Change from June 9	Change from Nov. 12
Million Bushels					
All Wheat	2,107	2,120	1,812	-15	-308
Hard Red Winter	1,021	970	888	-8	-82
Hard Red Spring	431	-	182	-	-249
Corn	7,064	7,300	4,671	-36	-2,629
Soybeans	1,923	1,880	1,512	-20	-368
Million Bales					
Cotton	14.76	14.00	14.84	+6	+84
Million Metric Tons					
Wheat	57.4	57.7	49.3	-15	-8.4
Feed Grains	215.2	219.9	141.7	-36	-78.2
Total Grains	277.1	282.6	196.5	-30	-86.1

Figure 10

U.S. Total Grain Supply and Demand

	1986/87	1987/88	1988/89 Forecast	Change from Year ago
Million Metric Tons				
Beginning Stocks	181	204	169	-17
Production	314	277	196	-29
Total Supply	497	483	368	-24
Feed and Residual	157	154	144	-6
Food, Seed and Industrial	60	61	62	+2
Domestic Use	217	215	206	-4
Exports	76	98	93	-5
Total Use	293	313	299	-4
Ending Stocks	204	169	68	-60
Percent				
Stock/Use Ratio	70	54	23	-

Figure 11

U.S. Wheat

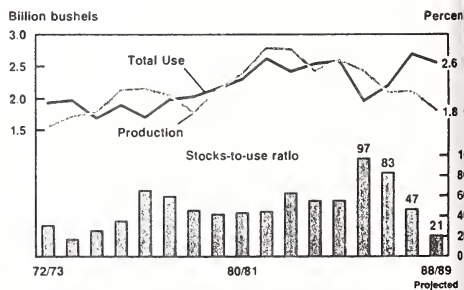


Figure 12

U.S. Corn

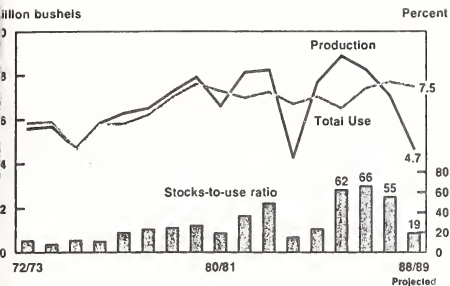


Figure 13

U.S. Soybeans

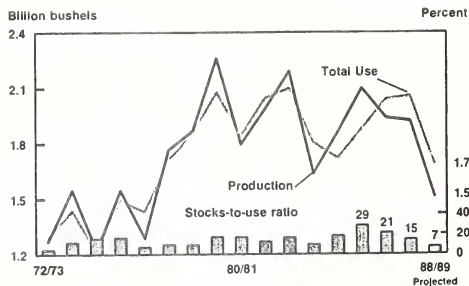
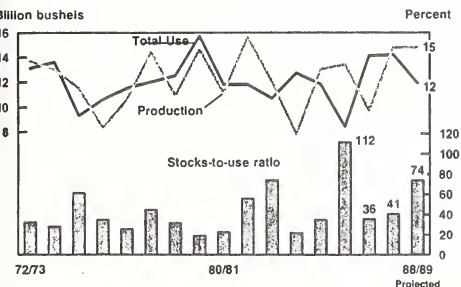


Figure 14

U.S. Cotton



Cash Farm Income

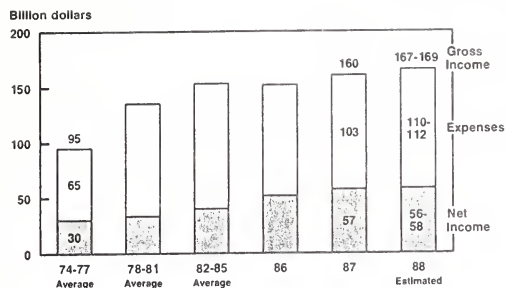


Figure 19

Changes in Consumer Price Index Percent

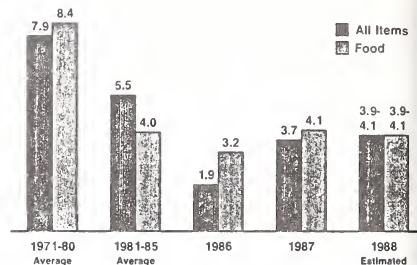


Figure 20

Crop Area Harvested Plus Conserving Uses

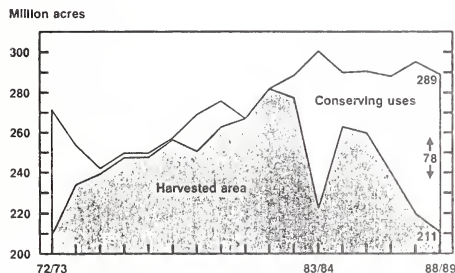


Figure 21

Acreage Reduction Requirements

	Acreage Reduction Program	Paid Land Division	Removed from Production	Planted
	Percent		Million Acres	
Wheat				
1988/89	27.5	0	23	65.7
1989/90	10	0	-	-
Corn				
1988/89	20	10	21	67.5
1989/90	10	0	-	-

Figure 22

U.S. Farm Prices Percent Change from Year Earlier

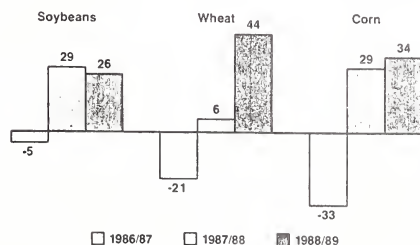


Figure 23

Index of U.S. Crop Yields Wheat, Feed Grains and Soybeans

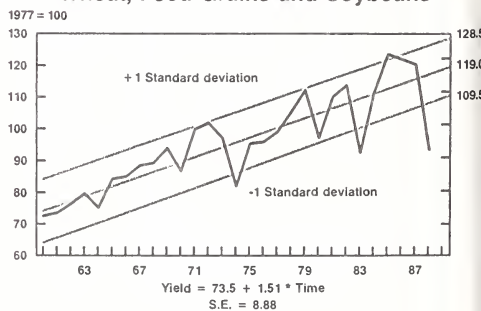


Figure 24

ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

United States Department of Agriculture
Washington, D.C.



Outlook '89, Session #1

For Release: Tuesday, November 29, 1988

THE OUTLOOK FOR U.S. AGRICULTURAL TRADE //

Richard W. Goldberg
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U.S. Department of Agriculture)

The U.S. agricultural trade outlook for fiscal year 1989 will be shaped largely by two key developments:

--what happened this past summer when the worst drought in over 50 years hit the United States, and

--what happens next week in Montreal when trade ministers of most of the world's nations discuss what can be done to establish a more rational trading order.

The Supply/Demand Fundamentals

In terms of world agricultural supply, the situation in fiscal 1989 is considerably tighter than last year. The severe drought in North America has had a pronounced impact. Going into this season, global stocks of rice, wheat, and soybeans were all sharply smaller, while coarse grains were down moderately. Only cotton stocks were up. Meanwhile projected production levels in 1988/89 are not going to be enough in most cases to prevent further large stock drawdowns by the end of the year.

But while global over-supply has subsided, it could easily and quickly return. There still is a large capacity to over-produce, mostly overseas. The United States has acreage reduction and conservation reserve programs that can be used when needed. At the moment, we even have reserves that will need to be replenished after last summer's drought. But overseas, there are production incentives of all kinds. In some cases capacity is far over-expanded.

For example, this year, because of limited U.S. supplies, the EC is expanding grain exports by some 6 to 8 million tons. EC export subsidies are providing European farmers with a tremendous incentive to produce. And the EC is not alone in this practice. The United States will have a problem competing with such subsidized competition unless we have the supply to be competitive. If U.S. prices aren't competitive, other nations--especially the subsidizing ones--will expand their production to fill the gap.

On the demand side, foreign economic growth is expected to fall slightly from 1988's 3-percent rate, with developed economies expected to slow a little more than the developing economies. The most robust growth, at 6 to 7 percent, will be in the Asian newly industrialized countries, but Latin America is expected to rebound from its recession to a modest 1 to 1.5 percent growth rate.

Continued population pressures in the developing countries suggest they will need to maintain large imports of bulk agricultural commodities, although they may also require large amounts of credit. In the developed market economies, as well as in the newly industrializing, export-oriented economies of the Pacific Rim, economic growth will remain robust enough to support continued strong demand for high-value U.S. agricultural items.

Key Country Markets

The market fundamentals indicate the outlook for farm sales in most of the United States' major markets appears bright.

Japanese purchases of U.S. agricultural products are expected to climb by about a billion dollars in fiscal year 1989, following a gain of \$1.7 billion in fiscal 1988. U.S. grain sales are expected to continue to be large, and gains are expected in U.S. beef and orange exports following the agreement to further open up the Japanese market. Sales of U.S. processed products should benefit from the settlement of the GATT-12 dispute and generally strong growth in the Japanese economy.

In South Korea another strong surge is expected in U.S. agricultural sales in fiscal 1989. The country is now the second largest single-country buyer of U.S. farm products after Japan and it should maintain this status as increased Korean feed demand and continued big exports of textiles and leather products sustain demand for U.S. agricultural products.

U.S. sales to Taiwan are expected to remain close to fiscal year 1988's record high, as favorable exchange rates give an edge to such U.S. high-value exports such as beef, turkey meat, fruits, nuts, and vegetables. However, a substantial downturn is likely in the volume of U.S. coarse grain and soybean exports, which constitute nearly 60 percent of U.S. farm product exports to Taiwan. Higher world prices, larger stocks in Taiwan, and smaller demand from the livestock and aquaculture industries all are factors in the projected decrease.

In the Soviet Union, a smaller coarse grain crop this season, which more than offset an increase in Soviet wheat production, is providing the impetus for continued large imports of U.S. corn and oilseeds and products. However, U.S. wheat sales to the Soviets are not expected to match 1988's all-time high of 9 million tons. Just yesterday, the United States and the Soviet Union signed an extension of the U.S.-Soviet Long Term Grain Agreement which will continue to stabilize the grain trade between our two countries.

In China, rising incomes and population increases, coupled with a downturn in grain production in 1988, are expected to strengthen the demand for food grain

imports. Higher wheat prices could boost the value of total U.S. exports to China to above \$800 million in fiscal year 1989. The improvement in China's external balance of payments also is helping U.S. exports.

Little growth is expected in the value of U.S. agricultural exports to the EC-12 in fiscal year 1989 as a result of slower economic growth in Europe, larger EC grain and oilseed crops, further cuts in EC dairy production, and the proposed ban on imports of meat produced with hormones. U.S. exports are projected to remain near 1988's level of \$7.5 billion.

Getting back to our own Hemisphere, Canada, like the United States, suffered from drought in the summer of 1988. As a result, prospects look good for U.S. corn and soybean meal exports, and possibly for some horticultural crops.

U.S. export prospects also look good in Mexico. Domestic production shortfalls and Mexico's austerity program to control inflation are likely to contribute to larger agricultural imports in fiscal year 1989, and U.S. sales could climb to around \$2 billion.

In other important markets in Latin America, U.S. agricultural exports to Venezuela are expected to remain fairly steady, after a sizable gain last year. In Brazil, U.S. export sales are likely to remain weak after declining by more than half last year. Brazilian demand for agricultural products continues to be depressed by its weak purchasing power, and a bilateral grain agreement with Argentina gives that country the edge in supplying whatever grain market exists.

The Policy Environment

Ongoing negotiations in the GATT and bilateral negotiations with several key U.S. trading partners will also shape the fiscal 1989 trading environment for U.S. exporters.

In today's market, trade distortions--subsidies, production controls, and trade barriers--have become the rule, rather than the exception. With governments worldwide thinking protectionism, tensions have heightened between trading partners.

That is why reform of the troubled international trading system is one of the highest priorities of the United States in the ongoing GATT negotiations. The United States continues to pursue its bold proposal for world reform of agricultural trade. That proposal has three parts.

--First, the trading nations of the world should join together and eliminate direct and indirect subsidies that distort agricultural trade by a date certain.

--Second, all import barriers should be removed.

--And, third, health and sanitary regulations should be harmonized to assure that they are based on scientifically justified needs and are not used as trade barriers.

Several other nations have also made proposals to the GATT. Many, as you know, are quite different from the U.S. commitment to broad, long-term reform. The

immediate challenge is to reach agreement on a framework for discussions so that concrete, long-term progress can be made. Progress is needed on a timetable to achieve reforms, on what the reforms should be, and on how to measure improvement.

The trade ministers of GATT member countries will meet next week in Montreal to review progress in 15 areas of negotiations. Agriculture is one of the more controversial of these areas. This reflects, primarily, a difference of view between the United States and the European Community concerning the direction of agricultural policies and the relationship between policy measures which might be taken in the immediate future and more thorough policy changes which might be made over the longer term. The United States recently presented an initiative to the GATT in Geneva to facilitate compromise. That initiative is consistent with our overall proposal.

International reform of agricultural trade practices will not be easy. We have had first-hand experience here in the United States in learning how difficult it is to change farm policy. However, even though the political and institutional obstacles are formidable, the laws of economics and the reality of the market force us to seek meaningful reform.

We must improve the rules that govern international trade if we are to even hope for sustained growth in world agriculture, and the resulting sustained growth that can result in trade.

Closer to home on the trade policy front, the passage of the U.S.-Canadian Free Trade Agreement now looks promising. The agreement strengthens and liberalizes the important trade relationship we share with the Canadians and includes a commitment from our two countries to work together in the GATT for fairer trade worldwide. The agreement also provides U.S. and Canadian agricultural producers increased opportunities to market their products in the future with no tariff barriers and fewer other barriers.

The United States also has been working bilaterally with many other nations--such as Korea, Taiwan, and the European Community to name a few--to remove a variety of obstacles to U.S. agricultural trade. The EC, for example, plans to implement a ban on imports of meat from livestock treated with growth hormones on January 1. If implemented, it will halt meat exports totaling about \$120 million a year.

The Outlook Summarized

Taken together, these market trends mean that overall, U.S. agricultural export value should continue rising in fiscal 1989. Value is expected to grow \$1 billion to \$36.5 billion. World prices for wheat, corn, and soybeans are expected to be their highest since 1985. A \$2.6 billion increase expected for grain and feed exports will more than offset prospective declines for cotton and oilseeds.

The volume of exports is expected to fall 8 percent to 136 million tons. Export volume is forecast smaller as the U.S. share of world trade shrinks for drought-affected products.

Exports of high-value products are expected to remain close to fiscal 1988's record \$16.4 billion as favorable exchange rates and relatively strong world economic growth help sustain these exports. This is especially true for horticultural products. In fact, the forecast for U.S. exports of horticultural products is placed at a record \$4.1 billion, up \$400 million from last year.

On the incoming side of the trade picture, U.S. agricultural imports are expected to match 1988's record \$21 billion. Imports of competitive products are expected to fall for the first time since 1982. The U.S. agricultural trade surplus is expected to rise to \$15.5 billion in 1989, a \$1.7-billion increase.

The Challenge

For U.S. agriculture, the challenge in the coming year will be to sustain the momentum in overseas sales which has been regained over the past few years. This will require more competitive prices, aggressive market development, persistent trade policy efforts, and a market-oriented trade philosophy.

The United States will continue to pursue its efforts to bring about the agricultural trade liberalization which is so vital not only for U.S. economic growth, but to build prosperity around the world. To achieve that goal, all trading nations, not just the United States, must work together for freer and fairer trade.

Countries must be willing to phase out the use of trade restrictions and subsidies. Farmers must be confident that adjustments they make will not be offset by the policies of other countries. Although this may sound much easier in theory than in practice, it is a goal we must strive for, particularly in light of the strong world demand for agricultural products.

Domestic programs, both here and abroad, must be focused on the market if we are to have a rational international trading order. The signals and incentives provided to farmers must reflect actual supply/demand conditions, not false incentives.

The outlook for fiscal 1989 poses significant challenges in the trade policy arena, but I am convinced that the trading nations of the world will meet those challenges and the result will be greater opportunities for agriculture. Those opportunities, in turn, will create even greater challenges for creative, diligent export market development efforts.

ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

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Outlook '89, Session #2

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COMMODITY MARKETING OPPORTUNITIES AND CHALLENGES

R. Gordon McGovern

President and Chief Executive Officer
Campbell Soup Company

I'm going to be conversational today, rather than talking formally with you. And I don't think it's any surprise to you folks that the subject that we're talking about, worldwide competitiveness, is a matter of very broad discussion, even debate, in government, universities, business, plant floors, wherever people meet and talk about issues.

At Campbell Soup, we believe we've been learning the hard way what competitiveness really is all about. It means more than just providing consumers with a product and pricing it right. It encompasses product appeal, quality and value; logistics and distribution; costs and profits; the use of latest technology; the education, training and retraining of people; entrepreneurship relationships among trading nations; and the role of governments in fostering a competitive environment.

You could really make an analogy somewhat to the game of chess. This game we're playing now globally in food is a game of strategy, wit, skill, imagination, anticipation, judgment, and even endurance, determination, and occasionally - occasionally - good humor. And it is a game in which, despite the moves of the competition, we still have considerable control over our own moves, and thus, our own destiny.

This afternoon I'd like to discuss with you some of the parameters of global markets. Our large domestic consumption and our agricultural productivity make the United States a key piece on the global chessboard.

Specifically, in Campbell Soup's case, we have a major focus on the American consumer, dominant, and very much in our mind's eye. At the same time, we have an active interest in Australia, Argentina, Belgium, Hong Kong, Japan, Canada, Germany, Italy, United Kingdom, Holland, France, and Mexico.

Our sales are running at the rate of about \$5.5 billion per year, and we are now questioning not only the size that we must be, but also the mental attitude and the physical conditioning needed to compete globally with the very best.

Let's start off with some random observations. Today's reality is that America's economic leadership is being challenged and tested as never before. Today's world is highly interrelated - that's not news to you people. It isn't only the stock markets that are in lock-step through instantaneous communications. The United States food industry is synonymous with the global food economy, and I think plenty of you out there know the examples that might be cited. But the Brazilian situation with our orange juice market, for instance, is an interesting one; they have maybe 50 percent of the market, and they dictate the price. The Americans are very active in the Japanese coffee market with African beans, which determine the price, and so forth.

It's a world that's interlocked, commodity-wise, finished goods-wise. It's a marketing world, a global world. And in that world, as you'll learn later on from the Michigan State team, there's change, and it's taking place at a very accelerated pace. That change involves not only consumers, but it involves technology, distribution and products.

I would leave you with the thesis that the U.S. food industry has a way to go to be globally competitive. No matter how good you think it is, or how good we actually are, we have a way to go to be globally competitive. And it's time, determination, and execution that are of the essence here. The whole chessboard is being reset, and the question is whether we will play as a leader, or find ourselves a captured pawn.

Today U.S. farmers are no longer the dominant feeders of the world. Global supply has expanded significantly and will continue to expand, as other countries try to manage their budgets and their political stability by the use of their food exports and food growth.

We have to look at this globe of ours in segments. Perhaps you've heard this before, but let's just recap it. You have four basic segments. The first world market includes North America, Western Europe, Japan, South Africa, Israel, Australia and New Zealand. The population, maybe 840 million, 17 percent of the world total, with a five-figure gross national product per person.

In the second world, you've got Mexico, Brazil, Argentina, the Pacific Basin, except Japan, with a smaller gross national product per person. But it's growing. You've got a young and expanding population. There are maybe 360 million in that marketplace, seven percent of the world's total.

Then you have the third world, in which I put India, Pakistan, Indonesia and the African nations. There you have a very small gross national product per capita - perhaps a few hundred dollars. Population growth is above 3 percent. Here you'll find a huge underclass of poor and malnourished, and at the other end of that spectrum, people who are doing very well. Here, we have 2.2 billion people; 44 percent of the earth's peoples.

And then the fourth world: Eastern Europe, the Soviet Union, China and the rest of the communist bloc. And until recently, that group was pretty much offside to our finished product attack. Recently, we're beginning to penetrate it to some degree. Historically, we've only made inroads through the commodity trade. There are 1.6 billion people in there, 32 percent of the world.

From our point of view as a consumer products company, a finished goods manufacturer, a value-added company, we primarily address the first and second worlds. We do not know a great deal about the third and fourth worlds. But in the first and second worlds, we see some very interesting things going on. And you might describe our market as the Triad markets - the Pacific Rim, the North American continent, and Europe.

Consumers in these markets have different cultures, but they have very similar food values. They enjoy quality and convenience. They are interested in health and nutrition. They're interested in the availability of food, the variety of food, the safety of food, and price value of food. Their order of preference seems to be becoming almost a worldwide standard. Home-made is first, then refrigerated then frozen, and then followed by shelf-stable.

Populations in this Triad market are aging. In the United States, the median age was 30 in 1980; in the year 2000, it will be 35.5. There are all kinds of statistics to make this point. In the year 2000, the population that is age 75 or older will have grown by two-thirds in the preceding 20 years. In the year 2000, only about 48 percent of the population will be under 35, versus 58 percent today. We'll be spending more time caring for our parents than we did for our children. By the year 2000 in Japan, one out of six will be over 65, compared to one of eight Americans. There's another general statement of where things are going in these population groupings. The United States, in the early year 2000, will be a zero growth population. Certainly today we're under one percent, and going down to a zero base.

So, it would seem that being a world competitor has got to involve different strategies for these four different markets. It calls for a mixture of exports, value-added products as well as commodities, where those things can fit in against the political structures and economic structures of other countries.

But it also calls for producing overseas and bringing back the technology and the strengths to the United States, so that we do have some protection against penetration of our markets by outside agriculture.

On the homefront the age of the blockbuster new product is largely over. The space in the stores is getting very hard to find. It's getting very expensive, and we're finding that, more and more, people are coming back into a rather restricted menu. There are opportunities and always will be,

but there is a limit to the amount of experimentation that people are willing to do within their food choices. And we're looking for technology more and more to get isolation, competitive advantage, and to fill small niches.

We're very happy when something comes along, such as the new growing business that we're having in our Great Starts frozen breakfasts. It brings new excitement to the category. But just as important as that are hundreds of different consumer-conscious improvements going into the older products, the Ivory Soaps of this world - tomato soup, chicken noodle soup - that are really the core of progress in the future.

We think often about the British, West German or Swiss as competitors on our soil, but we can't ignore the Japanese. In our business, ramen noodles gained 17 percent of the U.S. total soup market in eight years; 35 percent of the total soup market in some markets in the United States. We have 60 identifiable Japanese parent companies with operations in the United States. If plans materialize, the first Japanese scientists to work at America's Space Station will test food processed by Ajimoto, Taiyo Fisher, and Suntory, in packaging by Dainippon Ink & Chemicals, while the trading company Nissho Iwai will collect information on American and Russian space foods.

For the Japanese, food is priority in already forward-looking biotechnology research. Kirin has the first test-tube creation on the market, a spinach-cabbage, called senposi. That's one indication of how far they have come in moving down the biotechnology pathway.

On the fronts away from home, Campbell is happy to be among less than two dozen companies that compete globally across the food categories. Now, that's going to be interesting, as the industry continues consolidation. More than 23 percent of our total sales volume is outside the United States, and we hope to get it 30 or 35 percent in the next four or five years.

We recently acquired Freshbake, in Great Britain, the third largest frozen food business in the United Kingdom, and we'll try to develop our business in frozen and in some other areas as well. As we span different countries, our businesses there can cherry-pick from among the products we have in the United States, and we can work across some of their product lines. So there's intertwining as part of the global marketing strategy.

We see other opportunities in 1992. We have a growing business in our Delacre biscuit business in Belgium. It has an arm in Italy called Lazzaroni. Recently, we had a global technology meeting, which brought together our European biscuit people, plus the people from our Arnott's investment in Australia, at our new computerized Pepperidge Farm bakery plant in Florida. This is the kind of thing that's beginning to characterize the food business globally today.

We have a refrigerated salad company in Germany, Beeck-Feinkost. It's teaming up with Lacroix soups in Germany, and Laforest imported pates, but it's also beginning to do some interaction with our own Mrs. Giles' and Mrs. Kinser's here in the United States. So we have, again, this interfacing of technology and marketing opportunities.

Our Mexican operation ships the tomato paste to our Canadian soup plant. Just early this fall, we introduced Mexican soups produced in Mexico into Southern California, in red and white cans. Japan's Suntory is selling our V8 juice in vending machines in Yokohama.

Perhaps even more interesting, we have a growing business in the Japanese 7-Eleven Stores with Pepperidge Farm biscuits made in the United States and sent over. We hope to eventually see 100,000 cases of those biscuits being sold there.

Our Godiva business is also prospering in Japan. So these are opportunities that we see for value-added products from United States companies to get a foothold in some of these first world countries.

That's good news over here, because what goes into those biscuits is soft wheat from the Dakotas, Montana and Idaho. We use sugar from the United States. And other components of the cookies very largely come from all over the United States. These exports are small business now, but we can see them growing.

We're pleased that we're beginning to see some support from USDA for the notion of using Target Export Assistance funds to encourage the export of processed foods. And we recently got some relief when the Japanese lowered their tariffs on canned soups. We hope that the same thing will happen over there on some of our other products.

The Japanese don't eat a lot of soup, at least the kind of soup we eat, but they eat miso soup. They don't eat a lot of minestrone and such, but they also do eat a lot of something called corn potage. And as we begin to see the world melding together, perhaps corn potage will come back into the United States, and we'll be eating soup for breakfast. That's one of the strong hopes we have for the global marketing exchange.

A few months ago, I was over in Geneva, in my capacity as head of GMA, with a group of American food processors. We were talking to 5 or 6 European retailers. At that meeting it was interesting to see that every one of the Americans had a position in Europe, and every one of the retailers had a position in the United States.

Some of you may be familiar with the fact that the Belgians own Food Lion, which is a very actively growing chain in this area. The Dutch own First National and Giant, in Pennsylvania. The British own Shaw's. Jimmy Goldsmith, a British national, owns a big chunk of Grand Union. A&P is owned by Tengelmann, that's German. And more recently, Marks and Spencer bought Kings Supermarket, in New Jersey. And if you don't think the Europeanization of the American retail business is coming on the East Coast of the United States, you ought to think again.

Along with "Europeanization" comes the notion that the retailer should be making five percent after taxes, instead of the two or three percent that it makes today. They'd like to see a reversal of the incomes that the manufacturers make. So, global marketing brings some interesting dialogue.

In food processing, some of the largest food companies in the world - Nestle, Unilever, Philip Morris - are based offshore. We're getting consolidations in every possible way, both in advertising, in retailing, and also in manufacturing.

I would speculate that something that applies in physics applies here as well. It applies to commodities, and to value-added particularly. If anywhere in the world, someone is doing a better job of quality and value, they will eventually find your market and drive you to the wall. It won't happen tomorrow morning, but it will happen eventually. It's like water finding it's level.

And therefore, in the United States, we have to get leaner and much more participative at our worker levels, much more in tune with our marketplaces, much more direct with our systems of logistics and distribution. You want to be able to deliver very closely just-in-time, and made-to-order, assisted by computers, directly to the outlet store where the product will be sold. That has a tremendous impact on inventory accumulations. We have an enormous opportunity in the United States to make ourselves considerably more efficient than we are today as a food distribution system.

I think ultimately, if we can get that notion of fresh and the "todayness" and computerization in place, we'll be able to more effectively work into some of these export markets and overseas situations.

The time for modernization is now. Some food companies already have, some haven't. Some are in-between. I think we've got to reset to ever-changing channels of distribution in the United States, and overseas as well. And a significant segment of our industry must be willing and able to participate competitively in global markets. To do that, we need to raise our standards of excellence on every front. The chess game is changing, and we must react swiftly to be a survivor, a dominant player.

Let me close by saying that I think that all of us have our work cut out for us - from the farmer, through the processor, to the retailer. To be competitive, we're going to need to reorganize and restructure our thinking, our concepts of subsidies, our concepts of inventories, our concepts of freshness.

And just as we are rebuilding our industries, we need to encourage a rebuilding of some of the government policies that support national competitiveness. America must be competitive to survive and prosper. And as a company, an industry, and nation of people, we have to be determined to compete at the very highest level.

On the chessboard, it's our move to ensure that the competitiveness and the economic vitality of the United States remain second to none in the world. Thank you very much.

ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

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Outlook '89, Session #2

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DIRECTIONS IN FOOD MARKETING: RESPONDING TO CONSUMERS OF TOMORROW

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Traditionally the term "marketing" has been regarded as the act of shipping agricultural commodities to the marketplace. Today "marketing" has taken on a whole new meaning for many food and agriculture organizations. The term now encompasses the process of adding value to farm and food products, providing ultimate consumers and customers throughout the food system with products and services that meet desired wants and needs.

Contemporary "marketing" has become essential for profitable sales across the food and agriculture system. Traditionalism is on the decline as more effective marketing comes of age. Consumers, retailers, wholesalers, processors, as well as shippers, assemblers, producers and growers are changing their attitudes and behaviors with respect to food and agribusiness. Improved marketing strategies are emerging and are linked to the following basic components of the marketing process:

- Knowledge and understanding of ultimate consumers', as well as intermediary customers' wants, needs and perceptions.
- Development and positioning of products and services to match customers' wants, needs and perceptions.
- Communication of positive product and service responses to targeted customers.

Although these basic components of marketing understate the complexity and need for sophistication and creativity in the marketing process, they are indeed the central core of contemporary marketing processes that are vital for success in today's food and agriculture industries.

On an aggregated commodity basis total U.S. food consumption rises slowly, about equaling population increases. However, in recent years certain food products, often those of higher quality which meet more demanding specifications for size, color, condition, consistency, lower bacteria counts, etc., have witnessed dramatic increases in sales. At the same time, supplies of relatively undifferentiated products and commodities, especially those of ordinary quality sold for traditional markets and uses,

chronically overwhelm demand frequently forcing prices below profitable levels. This situation seems certain to persist. On the positive side, there are opportunities to reduce the pitfalls of the production/commodity approach. These opportunities available to "market driven" food and agricultural organizations reside in emerging consumer and customer trends and preferences, which in turn create potentially profitable situations throughout food production and distribution.

The purpose of this paper is to describe and analyze key changes occurring in the U.S. food system -- especially those changes originating at the consumer level. Emphasis will also be given to the ongoing transition within the food and agriculture industries moving away from traditional production/commodity orientations toward contemporary marketing approaches.

CONSUMERS: THE DRIVING FORCE FOR CHANGE

Changing consumer demographics, lifestyles and preferences continuously present food marketers with challenges, but also with opportunities. The key changes are as follows:

Rising Income

- Two-income families are on the rise. In 1960, they represented 26% of all families; but today 44% of families are dual income. It is projected that by 1990 they will account for over half.
- Family incomes are increasing. Although poverty persists in the U.S., and for many, incomes have declined in recent years, one-fourth of all families have incomes of \$35,000 or more. It is estimated that by 1990, \$35,000 that incomes will be achieved by over 30 percent of families (in constant dollars).

Changing Nature of Families

The structure of families is in the process of significant change. Consider the following:

- Increasingly households are headed by singles. (1)
- Traditional families with children, and where only the husband is employed, are about 28% of all families in which the wife is 18 to 44 years old. This group declined by about 25% between 1976 and 1987.
- Dual income families with no kids (DINKS) are 14% of such families. They increased by 31% between 1976 and 1987.
- Dual employed families with children (DEWKS) are about 45% of such families, and increased by 61% during the same time period. (2)
- With respect to women in the workforce, both by need or preference, it is estimated that by the year 2000, over 60% of the total workforce will be female.

Changing Lifestyles

For growing numbers in our society, time pressures are mounting -- "What used to be a time crunch has become a time famine . . . and food represents a big chunk of the convenience boom". (Business Week, April 27, 1987)

Growing Availability and Use of Microwave Ovens

- Microwave oven ownership and use is rising. Present ownership is at about 66% of all households (1) and 43 million servings of food and beverages are heated in microwaves everyday. (3)

KEY DIRECTIONS OF CHANGE

These kinds of societal changes have led in turn to four important dimensions of changing consumer preferences as well as directions of response by today's market oriented food and agriculture firms.

Consumer Desires Surge for More Convenient Food

Greater convenience with respect to food is a major direction and a frequent topic of discussion among virtually all involved in food marketing. Changing lifestyles, changing demographics and the development of new technology are combining to accelerate this long-term trend.

Convenience: An Expanded Concept.

On the surface the concept of convenience seems simple enough, but from a food marketing perspective it has many dimensions. Convenience can be defined as something that increases comfort or makes work less difficult. In the context of food perhaps it is having food that is wanted, when it is wanted, with a relatively small amount of effort.

In our fast-paced society convenience often is viewed as reductions in time of preparation or the time required to obtain food that is desired. Each year more of our population is feeling the pressure of the time crunch, the lack of time needed to do everything that should be done. For many, time is being viewed as a more limiting resource than money. But does this necessarily suggest that "instant gratification" is the goal, or does it imply that the amount of active effort involved must be considered? For example, which is more convenient, a meal with all preparation spent immediately prior to the occasion or a one where some of the preparation may have occurred earlier in the day, such as the use of a slow cooker for the evening meal?

Several years ago research revealed that 30 minutes appeared to be the maximum amount of time many "active lifestyle" consumers were willing to spend preparing a weekday meal at home. More recently consumer watchers believe this magic number has diminished to 20 or even 10 minutes. However, the answer depends on the circumstances. The meal using the slow cooker perhaps required more planning effort, and perhaps required more knowledge of evening family schedules. For some consumers this could be inconvenient beyond comprehension, but for others, a totally acceptable approach.

Understanding, knowledge, skill and confidence also impact food convenience. Limitations in any of these areas can turn a relatively simple task -- be it shopping, in-home storage or preparation -- into a monumental effort. When a meal's preparation is committed to memory and coupled with the experience of fixing it many times, it is usually viewed as being far more convenient than following an unfamiliar recipe, or worse yet, starting from scratch in the process of developing a "new" meal. Thus it is not surprising that many households view their routine meal activities with a sense of being in a "rut". After all, this minimizes inconvenience.

Another convenience-related issue has to do with the risk of failure. Putting forth the effort and failing is definitely inconvenient. Risk or failure may also be related to knowledge and skill, but there are also elements of some foods and methods of preparation that incur greater risk. Certain cuts of meat are of problematic taste, tenderness, etc. Inconsistent microwave oven cooking times, patterns and quality are also a very real challenge.

Marketing Opportunities for Greater Convenience

Food convenience is often thought of in terms of meal preparation. In fact, the relationship between food and convenience is much broader.

- Meal planning ranges from on-the-spot, impulsive decisions at fast food stores and at food courts in shopping malls, to "long-term" menu planning for a day, a week, or longer. The merchandising of products on supermarket shelves, aisle directories, in-store computer driven directories, meal planners, and recipe services all aid the process, as do food-oriented print and electronic media including the advertisements, restaurant menus and even the photography on product packaging.
- Food shopping and purchasing activities are clearly associated with the convenience factor. Familiar supermarkets are almost always easier to shop than are new ones. Ask any retailer about shoppers' reactions to major, or sometimes even minor, changes in store layout. Convenience stores have proliferated primarily to facilitate time pressured shoppers. A dilemma associated with shopping is seen in the "one-stop shopping" concept (which applies to virtually all consumables). As stores get larger to accommodate the one-stop concept, they become so large that the time element of convenience diminishes. In this environment, it is not surprising that drive-thru windows and home-delivery food services are among the fastest growing forms of food purchasing.
- In-home handling and storage of food is a hassle for many. Can food be rushed to the refrigerator or freezer before it warms or melts? Can room be found in the freezer? What cupboard does it go in? Does it belong under the sink or in the refrigerator, or where? How long will it keep? These kinds of issues and decisions impact virtually all households. Of course, a daily routine of purchasing reduces these inconveniences, but increases the time spent shopping may be a serious inconvenience.
- Food preparation and serving, while enjoyable for some people under some conditions, nonetheless remains formidable for most people most of the time. Moreover, over time, society in general, is choosing not to develop the understanding and skill of food preparation common to older generations. As we look to the future, it appears that the less cooking we do, the less we will be able to do, thus heightening the essential inconvenience of food.
- Even the act of eating is associated with the convenience factor. Increasingly the demands of busy lifestyles call for convenience of consumption. Traditional sit-down, home and restaurant environments are giving way to "meals on the go", such as eating in cars, grazing in airports and snacking on planes. Under these conditions foods are often consumed with one hand or, more precisely two fingers: thus the need for "finger foods". That different kinds of foods best suit different situations is obvious. Consider confronting a

less-than-tender piece of meat on a wobbly TV tray; or managing a hot cup of coffee (without a cover) in a car under less-than-ideal road conditions. The need for convenient consumption has led to finger foods and tetra-pack juices and will continue to alter the forms of foods we eat.

- Meal time cleanup has always been considered as drudgery and remains so even in the era of the dishwasher. Unfortunately kitchen cleanup after a day of grazing with no formal meals still results in the need for at least some and often substantial kitchen cleanup. It's no wonder we are a disposable-oriented society -- at least as long as we can find places to put the refuse. Once again, innovation with respect to meal and food cleanup is likely to hit consumers' convenience buttons.

Food Industry Responses: Convenience

- The biggest news in convenience is fresh prepared foods; also called fast foods and take-out foods.
 - Supermarket take-out food sales are second only to the restaurant industry. (4)
 - Supermarkets are a growing source of take-out foods for the lunchtime crowd as well as for ultra convenient dinners at home. (3)
 - Some retailers are putting their delis (where fresh prepared foods are usually merchandised) up front or are offering separate checkout registers in delis to speed the shopping process. (3)
 - Other supermarkets throughout the country are offering fresh prepared/deli foods at drive thru windows. (5)
 - Convenience stores are also rapidly adopting fast foods; 66% of independents and 58% of chains have or are planning to have these high convenience products. (6)
- Great Scott Supermarkets in Rochester Hills, Michigan, has experimented with the Intertouch Cuisine Machine, a computerized system that dispenses information on the selection, preparation and storage of fish, poultry and meat. (5)
- Martin Friedman, editor of Gorman's New Product News, reports that "a tidal wave of microwavable food products has already hit supermarkets and many more are on the way." Recently introduced items include: Microwave Fudge Brownies and Frost It Hot Frostings from Pillsbury, Instamash Microwave Mashed Potatoes, Baked Apples from Seneca Foods, Microwave Bacon from Wright Brand Foods and from Hormel, and Chunky Soup in a microwave container from Campbells. (7)
 - Microwave sales of both frozen and shelf stable products is estimated by the Business Communication Company to grow at 21% per year for the 1987 to 1992 period, then 13% per year to 1997. (3)
 - Microwave popcorn now makes up almost half of all popcorn sales. From 1985 to 1986 microwave popcorn sales were up 56%. (6)
 - Microwaves are credited with "getting Americans to eat breakfast at home again". (3)
 - Single serving microwave veggies and other foods are right on target for contemporary consumers -- convenience, quality and portion control. (8)

Quality Foods: Standards Are Rising

Over time quality Standards of food products are rising. It is also apparent that individual interpretations of quality differ greatly. The acceptability or excellence of food varies greatly from person to person, and for the same person, Standards also vary with circumstances. The point is, however, we are in the midst of an era when society's expectations of eating quality are gradually rising.

Quality Defined

In many instances quality serves as an all-encompassing concept relating to consumer perceptions of appearance, consistency, freshness, nutrition, safety, taste and understanding. Thus, quality, as the term is most frequently used, connotes a broader meaning than any of the above individual attributes. Regardless of subtleties or semantics, it is clear to most everyone in the food business that consumers' desires for higher quality foods are real and are here to stay.

Marketing Opportunities for Enhanced Quality

Since quality is such a broad concept with many interpretations among consumers, it follows that food marketers, from farmers to retailers, must respond. This is not to say that all responses will be equally effective since consumer understanding and appreciation of quality enhancement is critical for success. Thus, targeted consumers must understand and appreciate or value improvements such that they will pay more for quality enhancements than they cost to produce. As is indicated in the examples cited below, the proportion of consumers who are value-driven as opposed to those who are price-driven has grown tremendously in recent years. This trend is critically important since value-driven consumers typically will pay more for products and services that deliver on the promise of better quality. By the same token, over the long term shoppers will not pay more when they do not understand or appreciate quality enhancements or when the promise of better quality is perceived to be hollow.

Another indication of marketing opportunities associated with quality derives from the following combination of situations: First, as has been indicated above, consumers are generally desirous of higher quality foods; and, second, among society at large, skills, understanding and experience with cooking and the creation of high quality foods is diminishing. This combination of consumer desires and capabilities suggests that future sources for high quality foods will increasingly be food marketers rather than consumers' kitchens.

Food Industry Responses: Quality

- Consumer interest in gourmet products grows and grows. Supermarkets are continuing to move in this direction, but retail level training and product knowledge is key. (9)
- A & P is introducing a line of fancy private label foodstuffs, called Master Choice, to be targeted between mass market national brands and elitist brands. (10)
 - Loblaw's in Canada already has their President's Choice, a superior quality approach to private labels.

- Minneapolis is unusual among metro areas with the large number of upscale supermarkets. Two such organizations are Lunds and Byerly's. In developing enlarged service deli operations both have used central kitchens to achieve higher quality deli and fresh bakery food preparation because both of these organizations believe it is easier to get consistent, high quality products from a central facility. (11)
- The latest Food Marketing Institute Trends Update reports that "98% of shoppers cite quality of produce as a reason for choosing a particular store".
- There is a clear trend toward improved quality and upscale products.
 - Super premium ice creams have shown rapid growth with 1987 sales up 38% over 1986 levels.
 - Upscale adult, frozen novelties such as Dove Bars were up 125% in 1987 over 1986 levels.
 - Recent increases in premium snacks and cookies, such as super crunchy potato chips and fudge-covered oreos substantially outpaced markets for products of more traditional quality. (12)
 - Lower margin and not quite gourmet, shelf stable dinner helpers increasingly represent an attractive growth category. Many dry packaged dinner helpers have sought to expand their consumer base with noticeable quality improvements. (13)
 - In salad dressings, "chilled" is the hottest segment because it's perceived as fresher, or higher quality and generally comes in more gourmet varieties. Current growth is over 9% versus less than 4% for regular pourable, spoonable and dry lines. (14)
- Randy Golden, Director of Food Service for the Von's Company, says "The produce department has carried the freshness (quality) flag in supermarkets, . . . now deli-bakeries are taking over that position. Convenience . . . along with freshness and superior quality are the key factors vital for success". Golden also predicts carryout windows and satellite delis in parking lots. (15)
- The demand for quality may lead to more "designer TV Dinners", from famous chefs. The noted chef, Wolfgang Puck, has a line of frozen desserts, for example. (16)

Variety and Excitement: A Growth Strategy

Growth strategies of food marketers are increasingly focusing on variety and excitement for shopper appeal. Food processors are proliferating products with new and different tastes and flavors. At the same time retailers' store decor and merchandising approaches are emphasizing more interesting and pleasurable shopping experiences.

The Range of Variety and Excitement

To be sure, traditional products and merchandising abound; and yet the direction of change is toward an ever greater diversity of products and food store settings. The food industry has evolved beyond the situation when supermarkets were pretty much alike and when the vast majority of new products were simply uninspired line extensions characterized by new colors, sizes and flavors or other kinds of marginal improvements. Today, food companies attempt to capture sales and market share by appealing to a consuming public that is more open to significant changes in foods. Travel, the growing mix of ethnicity, higher levels of education, as well as a growing diversity of restaurant

food experiences, are all causal factors associated with an interest in truly new foods. Consumer interest in these new directions is based upon factors such as appearance, taste, understanding, a sense of adventure and desires for unique or exotic experiences.

Marketing Opportunities for Variety and Excitement

Marketing opportunities associated with consumers' growing interests in variety and excitement are substantial in a creative atmosphere. In fact, it may seem that opportunities for new types of food, as well as new tastes and flavors, are virtually limitless; however, marketplace success for new foods is a balance between "newness" and sufficient consumer familiarity and understanding to foster acceptance. Much of what has been "new" in recent years has come to supermarkets via food service where consumer acceptance was first established; for example, finger foods, Mexican, Oriental, Italian, as well as seafood and fish.

While some types of shopping such as spending an afternoon or evening window shopping at an array of stores in an urban shopping center or a mall is a commonplace event considered to be fun, pleasant, or at least a reasonable way to pass time, food shopping, with few exceptions, is generally considered to be a chore. Recently, supermarket operators, at least several in virtually every urban market in the country, have found that fun, interest or an excitement factor in fact helps to generate supermarket sales. This trend has thus far expanded to the point where mainstream supermarket operators are focusing on decor, design, upscale merchandising, and service departments with well-trained personnel to attract customers. It appears that supermarket shopping too can be fun, or at least less of a chore.

Food Industry Responses: Variety and Excitement

- "Sales of specialty cheeses are increasing at an annual rate of 6.6% while cheddar -- a standard product -- moves along at 2.2%". (17)
- "Increasingly, supermarket specialty foods -- from imported rare cheese to exotic produce, to bulk natural nuts and grains -- represent a thriving and potentially high profit category when merchandised correctly". (18)
- New items such as the following are finding their ways to supermarket shelves: raspberry vinegar at \$5.99 a bottle, Dijon mustard at \$3.99, imported strawberry preserves for \$5.99, designer salad dressing for \$2.99, orange bell peppers from Holland at \$5.99, fresh Sevruga caviar at \$59 for a 3-1/2 ounce jar, chocolate truffles for \$33 a pound, fresh baby white asparagus for \$33 a pound, fresh edible nasturtiums at \$1.99. While definitely not mainstream supermarket foods, these kinds of products are increasingly available in selected supermarkets and indicate a fundamental trend toward new, interesting and higher quality foods. (19)
- Daniel Best, technical editor of Prepared Foods Magazine, observes fruit and dairy combination products as a major opportunity for new product marketers. (20)
- A headline in the Lampert Report reads: "Cajun: Not the Rage in '88. How many cuisines have staying power? Will many go out as fast as they come in? (21)

- While some ethnic foods such as Mexican, Italian and Oriental have carved out sizeable space on supermarket shelves, the market size and permanency of many other cuisines remains a question. Supermarketers may create shopper interest and excitement with fads, but can processors make long-term investments in what may be short-term shopper interests?
- Increasingly, retailers are tailoring store decor, ambiance and merchandise to a selected targeted audience of customers. Russ Vernon, owner of the West Point Market in Akron, Ohio, made these comments: "I know who I am and who our customers are. This allows me to play classical music, for example. I'm not trying to be everybody's food store". (22)
- Retailers are merchandising fun and excitement with new contemporary and stylized stores, such as Von's Pavilions and Tianguis, Kroger's Store of the 90's, A & P's Black and White Stores, Byerly's in Minneapolis, Dierberg's in St. Louis and many more found in virtually every urban market across the country.
- Herb Ross, a noted store designer, says, "I try to think of the whole supermarket as a theater and the produce department as the opening act. Retailers that have introduced an element of the theatrical into produce departments say the result can be dramatic sales".
- At Pueblo's Florida-based Xtra Super Food Center, 475 produce items are carried with 175 specialty items, a fresh juice machine that squeezes 400 gallons per hour, and a melon bar with two or three fulltime workers to cut the melons. (23)
- Louis Kertesz, Director of Produce for Pueblo International, says there are roughly 80,000 edible varieties of fruits and vegetables. Given this, supermarkets are not likely to run out of "what's new and different" any time soon. (24)
- Giant Food of Landover, Maryland, has 20 of its 143 stores equipped with "Gourmet-to-Go Kitchens" which are complete food preparation facilities. Each kitchen has its own gourmet chef. (25)
- Kroger is testing sushi bars in two units in the Atlanta and Montgomery areas. James McIntire, Director of Public Affairs, says "The tests represent Kroger's commitments to merchandising excitement and variety". (26)

Nutrition, Safety and Health: Issues of Increasing Importance

Many food marketers view the 1980's as an era of growing consumer concern and awareness with respect to health, diet, nutrition and safety. What was thought by many to be a fad in the 1970's has become a series of on-going complex and important issues in the 1980's.

Nutrition and Safety in Perspective

Food and health are vitally important to consumers and thus to the food industry. As scientific and medical evidence substantiates the influence of diet on health, many people want to know and better understand how they can or should respond. Likewise, thought leaders in the food system from agricultural producers to processors and

manufacturers, as well as wholesalers and retailers, are all seeking answers to new and almost always complex situations.

Industry responses are complicated by the often confusing range of human behavior. Today many people accept and some are acting upon the following types of facts, half truths and notions:

- Better nutrition means less calories, fat, cholesterol, salt, sugar, meat, etc.
- Better nutrition means more fiber, calcium, fish, poultry, etc.
- Natural is better than . . .
- Fresh is superior to processed or preserved
- Organic is better than . . .
- Established governmental food safety Standards and monitoring procedures are inadequate

Despite nutrition and safety concerns among many consumers, often these same individuals are indulgent with respect to food consumption; that is, compensatory behavior is common. For instance, a diet coke with the meal followed by a high calorie dessert. Furthermore, consumers don't all behave in similar ways. In an increasingly segmented society there are groups of consumers possessing various attitudes and behaviors toward food safety and nutrition. However, it is important to note that the largest groups of consumers are comprised of those whose attitudes and behaviors are demanding higher Standards of safety, as well as greater nutritional merits of foods. These people, on the whole, possess higher levels of education and affluence, and their impact on attitudes of other consumers is substantial. These are society's thought leaders. Thus, is it expected that the long-term direction of change is for continued and increasing awareness of nutrition, and the effects of specific foods and diets on not only certain health problems such as cancer and heart disease, but also on the long-term overall health of individuals. Indeed studies are revealing that growing numbers of people are likely to consider foods, diets and lifestyles more seriously in terms of preventing health problems and prolonging healthful and active lives.

Clearly, nutrition and food safety are intimately involved in much of the lifestyle and information-driven change in our society. As traditional attitudes and behaviors change, the apparent ambiguity and contradiction of the "new" ways which are observed by many should not be taken as lack of interest in improved nutrition and safety. Progress will be made in these area, too, but the path of progress is rarely a straight one.

Marketing Opportunities for Nutrition and Safety

Changing consumers' food behaviors carry many negative connotations for food marketers. Some growth rates will slow, markets may reach saturation levels at less than projected volumes, and, indeed, some markets will diminish. But on the positive side, increasing awareness and new behaviors driven by nutrition and safety are creating numerous opportunities for affirmative and innovative marketers.

Many consumers want positive responses to their emerging nutrition and food safety wants and desires. During the 1980's food products emphasizing nutritional and safety attributes have proliferated. As new information regarding food and health comes to

light, opportunities for improved products will continue. As the same time, it seems likely that the portion of the population concerned about nutrition and safety will grow and expand markets.

Food marketers have benefited and will continue to do so by communicating positive nutritional attributes of new as well as existing products. Lower calorie products of high eating quality and convenience are increasingly popular. Likewise, products possessing higher fiber, plus quality and convenience, also sell well.

Consumers' desires to understand relate in part to the use of understandable communication and consistent labeling. The use of words such as "light" or "lite" and "natural" are cases in point. What do these words mean? Unfortunately, they have different meanings under different circumstances. USDA, FDA and FTC definitions and guidelines differ; and the resulting confusion does not serve the long-term interests of consumers or food marketers.

Consumer concern for food safety is on the rise. In the case of fresh fruits and vegetables, private chemical residue testing programs are being implemented by supermarkets, in some cases as competitive tools. The question occurs whether food safety should be used as a corporate marketing tool; or whether safety Standards should be uniformly applied by government to the benefit of all society. This raises the issue: Are current government safety programs keeping up with available technology? Even though a riskless environment is not possible, perhaps our society is willing to pay more for less risk than our current system provides. Perhaps the current system is technically adequate, but inadequately communicated to industry and consumers alike. This is an issue where government and industry leadership is vital for the long-term well-being of consumers and ultimately food marketers, as well.

In terms of the future, new technology is permitting the development of visual indicators for food products to monitor quality, safety and nutrition related factors including time and temperature, bacterial levels, as well as microwave oven doneness. Such devices will be invaluable for the safe handling of foods. These will enable consumers to have confidence where it may be lacking today.

Food Industry Responses: Nutrition and Safety

- Oscar Mayer has introduced Tasty Light, a line of roast beef, pastrami, corned beef and pepper-flavored beef products which it claims is 95% fat free. (27)
- Proctor and Gamble's Citrus Hill and Coca Cola's Minute Maid orange juices have both introduced calcium fortified products.
- Colombo Nonfat Lite markets a no-fat, no-cholesterol and lower sugar line of yogurts. (27)
- Tree Sweet has introduced a lite line of frozen concentrate and fresh refrigerated fruit juices with one-third fewer calories using Nutra Sweet. Key question: Will consumers accept artificial sweeteners in natural juices? (14)
- Following research findings which demonstrated that consumers wanted and would pay for closer fat trim on fresh beef and pork, the retail industry has responded with new trim programs reducing average fat trim Standards from about 1/2 inch to less than 1/4 inch. These changes truly have been "market driven".

- For consumers concerned with the safety and wholesomeness of beef and poultry, products are available which are raised without the use of growth hormones or antibiotics.
- Fresh produce sales continued to grow in both 1986 and 1987 at an annual rate of slightly over 8%.
- Gelson's, an upscale supermarket group in the Los Angeles area, is experimenting with yogurt bars because they fit with the current life-styles and interests of health conscious consumers. (28)
- The Food Marketing Institute 1988 Trends Update reports that 75% of the respondents deemed the availability of nutrition and health information for shoppers as being "very or somewhat" important. (29)
- Supermarkets, such as King's in New Jersey, are distributing information on proper home food handling methods and the causes of food borne illness. After the CBS 60-Minute report on salmonella in chicken the chain also responded to consumer concerns with information on how to handle chicken in the home to minimize the chances of food borne illness. (30)
- 3M will be marketing a visual salmonella test kit. The test will require no specially skilled personnel or costly instruments. (31)
- In 1984 Kellogg in cooperation with the National Cancer Institute developed its advertising campaign focusing on the role of fiber in preventing certain forms of cancer. Since then kelloggs has enjoyed a 20% increase in its high fiber cereal sales. At the same time consumer awareness of fiber increased from 30% (in 1984) to 90% today. (6)
- Nutritional labeling on food products is a fact of life. "Fifty-one percent of all products on supermarket shelves are so labeled", says Ellen Haas, executive director of the Public Voice for Food and Health Policy. Haas believes this is not high enough. (32)
- A recent report from the Department of Health and Human Services suggests that: "By 1990, 70% of U.S. adults will be able to identify the major foods that are low in fat and sodium, high in calories and good sources of fiber". Also, 75% of adults will be able to link suspected dietary factors with certain diseases. (29)

CONSUMERS AND FOOD: TODAY'S AGENDA

Consumers judge the benefits of all food not only on the above four broad factors, but in many instances on a dynamic set of criteria which changes over time and which differs among individuals. The following list, though not intended as definitive, is reflective of the words and phrases being used in today's marketplace by consumers to assess and describe food:

- | | |
|---------------|-----------------|
| ● Appearance | ● Quality |
| ● Consistency | ● Safety |
| ● Convenience | ● Taste |
| ● Excitement | ● Understanding |
| ● Freshness | ● Uniqueness |
| ● Nutrition | ● Variety |
| ● Price/Value | |

With the above consumer food criteria in mind, a marketing litmus test for food products is suggested: Does the product respond to a perceived consumer desire -- one or more of the above criteria? No product can succeed unless it meets this fundamental test of true marketing. That it meets a desire will not, of course, in itself insure profit or success; however, unless it does meet this criteria, the product cannot succeed over time. Moreover, in today's highly competitive arena, products, if they are to succeed, will likely meet several important consumer wants and needs.

One means of determining whether a food product meets this litmus test of serving consumers' is to consider the following consumer purchase decision criterion that applies to all food products:

Consumer Purchase Decision	→	Consumer Value Perception	=	Perceived Benefits <hr/> Price	=	<div> <div>Appearance</div> <div>Consistency</div> <div>Convenience</div> <div>Excitement</div> <div>Freshness</div> <div>Nutrition</div> </div> <div> <div>Quality</div> <div>Safety</div> <div>Taste</div> <div>Understanding</div> <div>Uniqueness</div> <div>Variety</div> </div> <hr/> <div>Price</div>
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A shopper of food products formulates decisions based upon analytical and/or emotional processes that ultimately result in acceptance or rejection of products. This decision process involves an evaluation of the perceived worth or benefits of the product in comparison to the price charged. Picture a shopper in a supermarket considering the purchase of a food product. What goes through the shopper's mind as the product is examined/handled? What are the shopper's perceptions of benefits, in comparison to the price? This comparison translates into a value perception of the product, which in turn converts to the purchase or rejection decision. It is recognized, however, that consumers respond in very different ways. Consumers from different demographic/lifestyle segments, possessing various wants and needs, will place different emphases on the benefits criteria, as well as the price.

If the perceived benefits of the item exceed the price charged, and if the benefit-to-price comparison is more favorable than for other perceived purchase alternatives, the shopper will likely purchase the item; otherwise, the product will be rejected. Given this as the nature of purchase decisions, the process of marketing plays a vital role in heightening consumers' value perceptions. Indeed, heightening consumers' value perceptions is the basic challenge confronting food marketers in their efforts to improve consumer demand and achieve profitable operations. (1) Indeed as all foods are competing against an ever longer list of alternative products, each positioned to gain its "share of stomach", the contemporary marketing approach is ever more essential to improve the probabilities of success.

MARKETING IS COMING OF AGE ACROSS THE FOOD INDUSTRIES

Some food firms have a history of being market driven, but many other food and agriculture firms and organizations have tended to be production, sales and commodity oriented. That is, energies and efforts in these organizations have been directed primarily at producing and selling products. This is in contrast with marketing efforts to determine what product attributes and services customers and ultimate shopper/consumers want and are willing to pay for. Though the basic customer oriented marketing process described at the introduction to this paper may appear to be simple in

concept, its successful implementation requires tremendous commitment as well as high levels of skill and creativity. (9)

Motivation for Change

Frequently food and agriculture firms face markets with burdensome supplies of commonplace products and services, most often of ordinary quality and sold in traditional markets for traditional uses. These undifferentiated products usually yield low prices and profits. At the same time, many suppliers are beginning to realize the higher profit opportunities presented by changing consumers and changing customers throughout the food chain, especially their willingness to pay more for products possessing superior benefits or attributes. Of course, the key issues are: Which customers and consumers will pay more? How much more will they pay? What kinds of new or improved products and services will they want? How can such products be produced and distributed?

SUMMARY

Adoption and application of the marketing process is the most important positive development taking place in the food system. This development is characterized by a newly adopted philosophy among industry leaders from a traditional production/commodity orientation toward one of marketing based upon consumers' wants and needs. These two widely differing philosophies are characterized by the two following business approaches.

Production/Commodity Orientation

With respect to the production/commodity orientation, production and sales of existing products are maximized often overlooking customer needs and related profit opportunities. Customers are usually viewed as being alike. The marketplace is seen as static, or at least sellers' behaviors imply a static marketplace. And finally, appeals to customers are based primarily upon prices and quantities of traditional products.

Simply stated, many in the food industry are crossing the threshold of contemporary food marketing. Firms are beginning to move away from the tradition of selling commodity-like, undifferentiated products in favor of marketing products targeted to the wants and needs of specific customer groups and consumer segments.

Marketing Orientation

Within the marketing orientation customer satisfaction is maximized with products and services based upon their wants and needs. Customers are viewed as different from one another with differing and identifiable wants and needs. The marketplace is seen to be dynamic, requiring new products and services over time. And finally, appeal to customers is based upon their ever-changing perceptions of value and quality.

A basic conclusion is that the food and agriculture industries are becoming increasingly market driven by responding to their customers. Indeed, the new wave of "marketed" food products and services is upon us; but it has only begun. There are many challenges and opportunities confronting contemporary marketers in their efforts to fully develop and expand the marketing approach. These marketers are necessarily in a learning and experimenting mode, open to new ideas and responsive to the challenges. Although the marketing process is relatively young, commodity sellers ought to beware; the new wave of "marketed" products will become increasingly formidable competition, and ultimately will be invincible.

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ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

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Outlook '89, Session #2

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WHAT TOMORROW'S FOREIGN CUSTOMERS WILL WANT

Curt Beatty
Vice President, John Morrell & Co.

Thank you, Alan. Members of the conference, ladies and gentlemen, I've been asked to talk about what tomorrow's foreign customer will want. And if you don't know what I'm going to talk about, it's exports.

Let me say at the beginning that I'm very enthusiastic about the possibility of exporting more agricultural products to the world, and especially meat products.

A few weeks ago, at the annual meeting of the U. S. Meat Export Federation, part of our theme was "The time to sell peanuts is when the circus is in town." And, ladies and gentlemen, the circus is in town. If we can't export meat today, we'll never be able to. Within the next three to five years, we have tremendous opportunities to export meat. The value of the dollar in the world market is responsible for making our exports competitive.

Part of the credit also goes to our own U. S. government. My Lyng and Mr. Yeutter have done an outstanding job in the last three to four years, and especially this past year, in getting us to the place where we were allowed to export meat. The agreement that we signed with Japan just a few months ago will allow us, within the next three years, to export double, triple, and maybe even five times as much meat as what we've exported in the past.

Red meat consumption in the United States -- that's beef, pork, and lamb -- is pretty constant today. In fact, recently it has dropped, with chicken and turkey increasing. We can offer meat in a new way, a better way, a value-added way, but in all practical terms, we probably won't be able to grow any more livestock, any more hogs and cattle, than we are today, if we depend on the per capita increase in the consumption of red meats in the United States.

So, where is our market? What are we going to do? Are we going to stand still, move backward in the livestock industry? Our hope is exports. And exports, in most cases, can be profitable; they can enhance the whole livestock industry, the whole agricultural complex. Exports are our best and most profitable way to increase the number of cattle and hogs that we're growing today along with enhancing the value of corn through livestock.

First of all, let's define the parameters of my presentation. I'm in the meat business, in International Sales, so I only know the foreign buyer. I can tell you what the foreign buyer will want tomorrow from the standpoint of meat. What I say doesn't necessarily include all agriculture, but many of the concepts pertain to agriculture, or for that matter, all exports.

The meat packing industry takes a perfect finished product, tears it all to pieces, and then tries to sell the pieces and the parts. That's very unusual. Besides that, it's a perishable product. And yet, today, the foreign customer is asking us to deliver to him, overseas, a chilled product with a shelf life that is the same as his domestically produced product. This is quite a challenge for the meat packing industry.

The opportunity in the meat packing industry with regard to exports is to move out of a commodity-type product into a value-added product. To be successful in exporting meat out the United States today, you have to add value to it.

Secondly, the foreign market that I'll be addressing is Japan. Why? Because Japan is the single largest market for all U. S. farm products. In 1987, Japan imported \$20 billion worth of agricultural products from all over the world. Thirty-three and one third percent of this product came from the United States, about \$6.7 billion. We have an opportunity to increase these exports if we do the job right.

Within my own company, about 88% of all of our export dollars are generated in Japan. So that's where our emphasis is. And, in most cases, we, in the U. S. meat packing industry are looking at that end of the business, Asia. Along with Korea, Taiwan, Hong Kong, and Singapore, Japan will continue to be our best export market for the foreseeable future.

The EEC, with its abundance of trade barriers and now, on January 1, the hormone ban on all meat imports, will be a non-entity as far as U. S. meat exports are concerned. There are other good export markets throughout the world, but on a much smaller scale than Japan and Asia. So we'll concentrate today on Japan.

Let's take a look at Japan and see why this market has developed and will continue to be developed. Here's a land mass that's 1/25 the size of the United States, but it has 60% of the population of the United States. Seventy-two percent of the Japanese islands are mountainous, leaving 28% for their agriculture, all of their factories, cities, towns, and for all of their people to live in. You can see why they depend on imports; they have very little room to grow food. They're also one of the greatest exporting countries in the world. Their per capita income today is the highest of any country in the world. But they're dependent on imports and exports.

In Japan, there are 770 people per square mile. In the United States, there are about 60 people. Japan is smaller than the state of California, but it has six times the population. Eighty percent of the population in Japan is what we would call middle income. They have a small low income group, and a comparatively small high income group. So the per capita spending is a tremendous area to work on when you want to export to that market.

We have had many problems in trying to export to Japan through the years because they've had almost a completely closed market. We couldn't do very much with it. But with the new import/export laws that we have now with Japan and the opening up of the beef market, we have wonderful opportunities there.

What does this large group with a large disposable income want to buy? "What does the foreign customer want?" In Japan, they want just about everything: cars, clothes, sports, vacations. They'd all like to have a private home of their own, but this is almost an impossibility for most Japanese because of the shortage of land.

It's easier to define what these Japanese customers don't want. One of the things they do not want is our surplus. They don't want us to export our surplus. They don't want the product that we can't sell in the United States; so don't offer it for export.

The new generation, especially, wants to eat better than their fathers and mothers and ancestors. The younger generation, the new population in Japan, questions and tries all types of food. They want to experiment with food.

Here is an opportunity not only in meat, but in all kinds of agricultural products, to go to Japan with exports.

Fast food restaurants in Japan are growing in ways you can't imagine. Japan now has over 1 million fast food outlets, compared to only 600,000 in the United States. Japan has 1 restaurant for every 117 people in the country, while the U. S. has 1 restaurant for 400. This means demand for agricultural products with increasing possibilities for the United States. With the opening of the Japanese beef market, we expect to export double, triple, maybe even five times as much meat as we're sending there now.

What do their customers want? They want high quality, very, very high quality. The one thing the U. S. has of all the nations in the world that grow cattle and hogs, is that we can offer high quality beef, high quality pork. With our agricultural complex and our ability to feed cattle corn and hogs corn, we can raise better cattle and better hogs, cheaper than anywhere else in the world. And that's what the Japanese want; they want the very highest quality. In some cases, it's hard to raise the heavy cattle they want under our system; it's a challenge. In pork, they want boneless, all grain fed, frozen or, today, chilled. The same is true with beef, boneless and chilled.

Last week, my company experimented with the first load of chilled beef going to Japan for which we guaranteed a shelf life of 60 days after arrival in Japan. This is quite a challenge. We have many things that we must improve in the meat packing industry. The average meat packing plant today is probably the most outmoded type of business that you'll find anywhere; it needs to be updated. But little by little, we're doing that. It's a small margin business. Capital improvements have been very difficult to come by. But with the profitable export market spurring us on, we've been developing new methods, new ways of handling meat all the way from buying the livestock to selling the consumer.

I think it was mentioned by Dr. Allen that one of the problems Morrell was having was that the weight of live cattle was varying by 400 pounds. The Japanese demanded that the 75 head of cattle that we broke last week for the experiment be within a 20-pound break. Seven hundred and fifty to 770 pounds was the carcass weight that we started with. The product was completely boneless, vacuum-packed, boxed, and sent to Japan chilled. With it, we sent our quality engineer in charge of export beef. He followed the load all the way, and helped

distribute it to the end customers. And, at this point, we're looking for another order back this week again. It was an experiment, but it's the kind of thing that the Japanese customer wants and demands.

Markets for processed meat exports to Japan are in the process of being opened up within the next three to five months. As of April 1, the duty system on processed meats going to Japan will go from 25% to 10%. Here again is an opportunity to take a processed line of meat and meat products from the United States, and export it to Japan.

There are still many trade barriers in this area because of Japanese government requirements for importing processed meats. One of the big ones is to try to create a consumer-sized product, such as what you saw Dr. Allen show on the screen, where every package offered for sale in the retail market must be dated as to the date of pack. It's very difficult for us to prepackage a load of meat in the United States with date the day we're packaging it, and then offer it for sale in Japan two and one half weeks later. The Japanese think it's not fresh enough.

The Japanese consumer is one of the most picky consumers in the world. This consumer normally shops every day for that day's foods. This is all the housewife has to do; homes are very small and there's nowhere else to go in that crowded country. So that's one of the things that she does every day: shop for that day's meal. And in this shopping, she is particular.

We have one customer in Japan, a meat packer, who packages luncheon meats from 11:00 at night until 3:00 in the morning, and puts the date 3 a.m. on it, delivers to seven different stores, so that when the consumer comes in that day, he or she will pick up the package of meat that is the freshest; it's today's date. And they're very particular about it.

This is one of the problems that we have to overcome. Part of the solution may be repackaging when it gets to Japan by producing in bulk. There are many different ways we're looking at now to try to compete with Japanese domestic products. We can produce high quality processed meat products in the United States, ship them to Japan, by boat or even by air, and offer them at a cheaper price than they can be manufactured in Japan, especially when it contains beef. Japan is not able -- because of the high price of beef -- to make a processed meat product containing beef meat. So here's an opportunity to go to Japan with a product that can make money, a value-added product that will be a very good seller when it arrives.

The future of meat exports will depend on a complex set of circumstances these next three years. Our domestic prices, of course, are very important. We operate in a world of supply and demand, a free trade operation, so our domestic prices are very important. Domestic and world supplies will make a difference as to whether or not we can export, as will the value of the dollar, trade barriers and subsidy programs of other nations, production costs and improved efficiencies in livestock production and meat operations. World economic and financial trends are a factor as are foreign trade policies.

R & D is going to be an important factor in the coming years in determining whether we are a great exporter, whether we can take the lead in exporting. You'd be surprised at how much better some of our foreign competitors are in meat operations than we are.

Our competition from other nations in meat is terrific. Australia, Taiwan, and New Zealand can move meat into the Japanese and Korean markets cheaper than we can, and much faster. Except they don't have the high quality product that we do. Normally, we can sell into Japan and get a much higher price for our high quality than what they can get for their grass-fed product.

A first step in doing business with a foreign customer is to recognize that our American way of business is not universal, and it is not necessarily the best. All of you have read of the many failures that companies from the United States have had in going to Japan and trying to sell their product. Somehow, many Americans have the idea that anything that we do is better than anybody else. We've sent our hot shot salespeople there, who try to sell the Japanese only what they want to produce, not what the Japanese want to buy.

I think one of the reasons -- and I've told this story before and some of you probably have heard it -- that I've been successful in overseas marketing and overseas sales is because I'd never been in the Sales Department until I went overseas and tried to sell to a Japanese customer. I didn't know what you were supposed to do to sell meat. It happened that I was asked to run a survey for six months to see whether or not the company should be in the export business.

We had a new plant that just opened with no domestic sales volume at all. We needed a place for the product to go. So when I had an opportunity to go to Japan with a potential customer to see what they wanted to buy, that's what I did, I sold them what they wanted to buy and we came back to the plant and made that product. We didn't make the mistake of going to Japan and trying to sell them what we wanted to produce instead of what they wanted to buy. From that day forward, we've made what the customer wanted to buy.

Along the way, we've had problems. When you get into a plan of operation and you're making a product that is far superior to the same product that you're offering to the domestic public, you sometimes get a foreman who says, "The hell with that, this is a better product than what I'm making for our own customers here in the United States." And I tell him, "Well, you look at the price that we're getting for that product. It's what the customer wants to buy, and he's willing to pay the increased price."

Surprisingly enough, much of the value-added products that we're selling in the United States today resulted from the higher quality value-added products that we were making for the Japanese customer.

In most cases today, the Japanese buyer is a very sophisticated buyer. In almost all cases, he'll probably know more about your business than you know about his.

To do business with him, you must be a reliable, consistent supplier, and you must have his trust. That's number one. You've got to be a reliable, consistent supplier. In the United States a few years ago, we made a sad mistake when we put an embargo on soybeans going to Japan. On almost every trip I've taken to Japan, I hear the question of whether the United States is a reliable supplier. "Look what they did to us on soybeans," they'll say. We ended up losing market share, and it's taken us a long time to recover.

If we're going to be in the export market, we've got to stand behind our product. Whenever there's a problem, stand behind the product; don't walk away from it.

I used to have a boss who said, "Don't worry about it, you're only selling 3% of the customers, and there are 97% other potential customers out there." That's not true anymore. Today you can sell something wrong and the whole world will know about it tomorrow. Stand behind your product.

First of all, try not to send a mistake over there. Get a quality control program and double check it. You must be able to take an order at the customer's convenience, not your convenience. Ship on time, when the customer needs the product. You must be able to do the documentation for that customer: correctly and timely MIDs; government certification; ship's bill of lading; invoices. Don't rely on him or someone else to do it; you've got to be responsible. You've got to be able to invoice in yen per kilo and convert that back around in your computer so that you come out correctly. Sight drafts, handle air shipments on an emergency basis if he needs the product, handle claims in a fast and orderly manner -- all these things are necessary.

Another big problem you probably are going to have is to recognize the customer's credit needs in his country versus your country. It's difficult to do business in a foreign land and hook him up with the way your credit manager, who's never been out of the state of Illinois, wants his credit set up. Send someone to Japan with you, recognize the banks' opportunities there, your opportunities here, and arrange a credit system that is both safe for you and satisfactory to the customer. This is sometimes very hard to do.

Communication with the foreign customer is a problem. Language problems can be overcome; but an even greater problem is the business logic of this foreign customer versus what you know as business logic. Americans are noted for their short-term profits, a P & L at the end of every month, where as your Japanese customer is interested in the long-term approach, market share; then their profits will follow. Sometimes these two concepts are very hard to bring together.

Be able to offer a product the customer wants to buy, and not necessarily what the plant wants to produce for you. Emphasize quality control and cost tests. Prove to your management that there is a better, more profitable way of producing a product. It may cost another 25 cents per pound to produce, but you're going to get 35 cents per pound more for the product.

Offer product packaging to the customer's specifications. When you offer product to a customer overseas, you've got to offer it in the sizes and in the quality that he's accustomed to. Just because you can put up two pounds of franks here on a machine very fast does not mean that the Japanese consumer is going to buy two pounds. Normally, if he or she buys four franks in one package, you're going to be lucky. Don't try to force on your customer the packaging that you can do well. You'd better find out what kind of package that customer wants, and then produce it; a smaller package with longer shelf life.

Japanese are surprising, sometimes contradictory, but it is fun trying to sell them. If you're successful in selling Japan a product that will be successfully marketed there, you can probably sell any kind of a product anywhere. If there's one thing I've learned about Japan, it's that even after 90 trips and I return home, I understand that I know less about Japan than I thought I did.

Thank you very much.

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MARKETING STRATEGIES FOR COMMODITY PRODUCERS

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Given time to adjust, most commodity producers will respond to the economic incentives presented them. In the recent past a dominant source of economic incentives has been the federal feed-grain program. This program has had major impacts on storage decisions and on timing of sales, as well as on allocation of planted acres among various commodities--in my case acres in Eastern Nebraska planted to corn, soybeans, grain sorghum, and winter wheat. The gradual lowering of loan levels had, until 1988, resulted in a gradual shift from government-established prices to market-determined prices. But the drought of 1988 greatly accelerated this shift. Market prices substantially above loan levels certainly provide welcome opportunities for commodity producers. But to take advantage of these opportunities we commodity producers may need to give new attention and effort to marketing strategies.

Marketing Strategies of the Recent Past

During the past few years and as recently as seven or eight months ago the important marketing considerations for most commodity producers were the Commodity Credit Corporations (CCC) loan level, the Farmer Owned Reserve (FOR) and Generic-Payment-In-Kind (PIK) certificates. To market my 1985 crops of corn and grain sorghum, my first step was to participate in that year's feed-grain program. Then, at harvest, I put the crops under CCC loan, the loan price being higher than the current cash price at the time. At the expiration of the regular CCC loan, I transferred both commodities into the FOR. This yielded me an advance storage payment of 26.5¢/bu/year for three years while preserving my control over the commodities in case of substantial price rises. This, in retrospect, was probably good marketing strategy, and it didn't require much work to figure out.

In 1986 things got more complicated. I participated in the feed-grain program and placed the grain under CCC loan at harvest. The FOR, however, was filled up but so were my bins. I had the traditional options for fulfilling the loan obligation, repayment and forfeiture, plus a new one--redemption with the PIK certificates. Although the PIK arithmetic seems simple now, it was indeed confusing at first. But because there was a good incentive to figure it out, I did. I used it extensively to market my 1986 and 87 feed-grain crops and to market FOR grain from earlier years. The trick was not necessarily to price on a high cash market, but rather to "PIK and roll" (i.e., to establish the redemption price for the CCC loan and price the redeemed grain on the cash market) so as to maximize the difference between the cash price

received and the PIK redemption price. Especially during 1986 and 87, when cash prices appeared destined to remain below loan levels, I was satisfied to accept the target price offered by the feed-grain program plus possibly an additional 10¢ or 20¢ per bushel from PIK and roll.

There were several further implications from the feed-grain program and the associated marketing strategies. First, a large part of the income from producing feed grains came in the form of government cash payments and PIK certificates. Because these payments were in part subject to the \$50,000 payment cap, commodity producers made considerable effort to preserve the \$50,000 payment "persons" in their operations, and many tested the rules governing the creation of new persons. Second, the choice about allocation of acres to crops was simplified. Because wheat and feed grains had target price protection and soybeans did not, your first priority was to maintain your wheat and feed-grain bases. Thus, you planted the maximum feed grain and wheat acres allowed, and if your farm had both irrigated and dry land you planted as much irrigated land to feed grains as possible. By doing this you get the higher irrigated established yields and thus higher government deficiency payments for your feed grains. Third, the program affected relative land values. Farmland with a higher percentage of feedgrain base and a higher established yield (perhaps because the producer had yields "proven") was worth more than possibly more productive land with a lower percentage base and yield.

Marketing the Current Crop

There have been some important developments that affect marketing strategies for the current crop as compared to last year's. At present, the predominant 1986 and 87 strategy element, PIK and roll, doesn't work. Also, unlike the previous two crop years there is concern this year about "protecting" deficiency payments. Deficiency payments will be reduced by the amount national average cash prices exceed loan levels. If a producer prices his crop above the loan level, but at a price that turns out to be less than the national average cash price, his cash price plus deficiency will not add to the target price. This current environment requires a substantial redesign of the marketing strategies used in the recent past.

An appropriate strategy should include knowledge of a lot more alternatives and investment of a lot more thought and effort than most commodity producers are used to given the experience of feed-grain program participation in the past few years. Appropriate strategies have been outlined by publicly supported educational efforts (e.g., extension service) as well as by private market advisory firms. These strategies involve: establishing a marketing plan before the crop is planted, to include identifying capacity for risk bearing and estimating variable and fixed production costs; developing detailed pricing objectives for both the preharvest and postharvest periods; and incorporating use of a full array of marketing tools--futures and options markets and the several types of elevator

contracts. In addition, effective implementation of these strategies require collection and analysis of local basis information, and frequent update of fundamental and technical market information. Until recently, however, this sort of strategy and the time and effort it represents has not interested many commodity producers.

In a little more detail, a marketing strategy for a feed-grain producer might be as follows. A basic marketing plan is drafted sometime before spring field work begins. Included in this plan would be estimates of the components of production costs for the coming year (variable, fixed, and total), estimates of government program participation costs and returns, and a probability distribution of market prices based on past and current futures prices, local basis patterns, and available fundamental and technical information. From this information, derive expected net returns for various crops and decide on an allocation of acres to feed grains and other crops. Also, considering ability and desire to beat risk decide on the maximum quantities to be priced preplant and preharvest and establish a price objective for each package (e.g., 5000 bu) to be marketed. These price objectives may well include two components--a basis and a reference (futures) price. The plan may call for these to be considered separately. If so, buyers who offer basis contracts or hedge-to-arrive contracts need to be identified. Also, once pricing objectives are met you need to decide whether to fix the reference price or establish a minimum, and whether to do this yourself (hedge or buy put options on your own account) or hire a buyer to do it for you (hedge-to-arrive or minimum price contract with an elevator). You should also decide at this stage whether or which market advisory service to use. Several are available and many are moderately priced.

This much is a start, but not a finished product. You need to update and revise. Futures price charts, basis tables or charts, and the tabulation of fundamental information need routine updating, and the required time allocation can't be ignored. Price objectives also need to be revised, but not to the point of paralysis. It is very tempting to conclude that "these guys surely know more than I do" or "I'll wait and see what happens." You must be prepared to ignore some "expert" advice, e.g., "beans in the teens," and proceed with your plan.

At harvest an update is in order. You now know how much production you have and how much remains to be priced. Your decision to store, or not to store, should be based on the expected return to storage vs. storage costs. To calculate the expected return to storage you need some local basis history, i.e., you need an expected basis at the end of the projected storage period. If the storage return is positive you should consider a storage hedge to lock in the return. If the return is negative, you should consider selling on the cash market and not storing. In either case, if the cash price at harvest is not acceptable, you should do the speculating you wish to do (or the hedging to protect deficiency payments) by holding futures or options rather than by holding an uncovered position in the cash commodity. Finally, if you have on-farm storage and know you will store grain at harvest, during the preharvest period you should probably try to use a forward bull spread to lock in a storage return.

Current Practices

I conducted a highly informal survey of some producers in my local area to get an idea of how actual marketing practice compares with the marketing strategy just outlined. The farmers I talked to are veterans of the feed-grain program in an area with traditionally high participation. To market their 1987 feed grain crops, most put it under loan after harvest (and after January 1 for tax purposes) and then used the by-then familiar PIK and roll procedure. The 1987 soybean crop was harvested unpriced, put in storage, and then priced during the first few months of 1988. Some held both soybeans and feed grains into the summer rally, but some of these were still holding part of their 1987 crop in November of 1988. As for a marketing plan for the 1988 crop most didn't plan to consider pricing any of the crop before harvest. I did, however, talk to a producer who had planned to price before harvest, used costs of production to establish pricing objectives and did price about half of the crop before harvest. For the most part the producers I talked to did not subscribe to market advisory services, did not keep price charts or tabulate basis information, and did not have an account with a commodity broker. About half had on-farm storage for a year's crop. The predominant market position as of early November was none of the 1988 crop priced before harvest, some priced at harvest, and most of the crop at present in storage unpriced.

A local elevator manager I talked to largely confirmed what I found out from producers. For 1988 corn and soybeans about 13% and 25% respectively were priced before harvest, another 17% and 5% respectively at harvest and for both commodities about 70% remained in storage unpriced. He noted a tendency among his patrons to be divided into two camps--"price before harvest" and "don't price before harvest." At least for this year the former camp tended to price too much too early while the latter camp let the whole rally blow right past them. For this elevator, a relatively progressive one, cash purchases were most important followed by forward price contracts and delayed price contracts. Basis contracts, hedge-to-arrive contracts, and minimum price contracts were used sparingly or not at all.

A commodity broker's perspective was also interesting. This broker said he dealt mostly with commodity producers. I gathered from our conversation that during the summer price rally several of his clients suffered from "bull fever," i.e., "no reason to price now--it's surely going higher." Other clients suffered paralysis, they don't know what to do, so they did nothing. Finally, a lot of what was done could be described as dabbling around the edges. A few sold futures contracts but offset the positions a short time later. But for this broker's clients a more popular move was to sell an out-of-the-money call option, e.g., sell a \$4.00 call for corn. This "worked" to the extent it earned a call premium for the producers, and seemed to me to be pretty clever but to the extent the options weren't exercised had little to do with commodity marketing.

This sketchy information suggests that most producers in my area let the pricing opportunity provided by the drought of 1988 slip past them. But, perhaps more important, it suggests that most producers do not have plans and procedures for dealing with a volatile market environment.

Conclusion

Government feed-grain programs have been both a good business decision and a good deal for commodity producers. But, by insulating producers from market-price volatility, these programs have tended to reduce producers incentives to be aware of, and respond to, market prices. If market prices remain above loan levels commodity producers will face a new set of economic incentives. For many producers a proper response will require the acquisition of some new skills, a change in habits and an expenditure of some time and effort. But producers will respond because it will be clearly to their economic advantage to do so. Among the benefits producers may realize are better management of price risk, more sensible decisions about grain storage, less costly speculation in cash commodities, and more awareness by producers of both the prices and costs for various production and marketing activities.

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MARKETING STRATEGIES FOR AGRIBUSINESS FIRMS

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For nearly four decades I have been involved in the U. S. food industry in various roles: producing and purchasing commodities; processing and marketing food products; and, of course, retailing food and household products. If there is one conclusion I would draw from my forty years in a highly competitive sector of our free enterprise system it's this: **when you serve your customers needs better than anyone else could serve them, the likelihood of sustained growth and profits intensifies.**

It's not a very complicated formula but it does demand three things: more intimate knowledge of your customer and his business; objectivity; and self-discipline since it totally rejects the concept of subsidy.

With those introductory remarks you know a great deal about me and my business philosophy, which has stood the test of my lifetime when all economic and competitive forces were free to act naturally.

When invited to speak here today, I was asked to address three questions:

- 1) What must agriculture know in order to market its products better?
- 2) What are the best marketing tools and how should they be applied?
- 3) Why should agriculture concentrate on **demand** rather than **production**?

That's a tall order and perhaps it's beyond my grasp, but I welcome the opportunity to deal innovatively with those important questions.

Let's begin with a brief assessment of where agriculture finds itself today. In America, the greatest agricultural nation on earth, we have the capacity to produce the widest variety of quality commodities anywhere in the world. The fertility of our farm land is so great that we can soilbank productive land so we won't overproduce. We have a marvelously supportive physical distribution network that enables us to quickly bring produce, livestock, poultry, eggs, milk, fish and seafood to market while still very fresh. We also have an effective Department of Agriculture that for 126 years has diffused information on agricultural subjects and administered laws to protect the farmer and the public.

Yet, in spite of these huge advantages, every year we have fewer farms, fewer farmers, fewer food processors, fewer agribusiness firms, fewer food distributors but more federal services for agriculture, and continuing government subsidies to our dedicated producers whose share of the retail price for their produce continues to decline.

What causes these unique conditions in a nation whose fortunate citizens still spend less of their discretionary income on food of any country in the world? Or better still, what should we do about those conditions?

You just heard some marketing strategies for producers. As I listened, they made a good deal of sense. In a few minutes, I will suggest some marketing strategies for agribusiness firms. But before I do, I'm going to step out of my designated role and suggest one overall conceptual strategy which, in my opinion, directly relates not only to the three questions I was asked to address but to this Outlook Conference also.

A NEW CONCEPT?

We all know that it isn't good enough just to grow top quality product anymore. The previous presentations today re-emphasized that principle. Today we must market better to changing audiences throughout the world as well as continue to produce more efficiently. And the debate over whether "value-added" is really necessary has been replaced by how can we add value. Therefore, in the interest of achieving those key objectives, I suggest that the Department of Agriculture consider reassessing its name and expanding the concept it follows, which grew out of a \$1000 division of the Patent Office in 1839.

You are probably asking, why change? After all, things are going well enough. Besides ... comfortable people never change their habits. Well, my friends, those are two excellent reasons ... and there are more. The Department should examine if and how it might better serve not only the great American agriculture sector but other commercial components of our economy that interplay with American agriculture today and are vitally linked to it.

Let's pause a moment and examine what the definition of "agriculture" is in Webster's dictionary. It says agriculture "is the science or art of cultivating land in raising of crops, livestock or poultry." Nothing is mentioned about further food processing, marketing, distribution, retailing, commodity trading, changing American lifestyles, nutrition, subsidies, global competition or international sourcing of raw materials for further processing by food manufacturers.

While U.S. agriculture is absolutely essential to the well being of every American citizen, to the U.S. government, and a great many of the world's human population, the fundamental purpose of any governmental body should be the adaptability of its processes to meet contemporary needs.

When the Department was created it was chartered to support and encourage producers in growing wheat, corn, cotton, tobacco and other commodities and livestock for America's citizens, which in turn were predominately prepared and further processed in the home. There were very few middlemen in those days. That's far from being true today.

In the past two decades we have experienced the greatest revision in consumers lifestyles in our history, which in turn has changed the way Americans eat and feed themselves. In addition, we are now part of a shrinking global/political economy which will further intensify. Such changes have created some major revisions in the conceptual directions of how agriculture and the food industry will feed our citizens with what they want, when they want it, where, how, and in what form they want it.

Food manufacturers are responding. They are sourcing raw materials from around the world and marketing their products internationally. Retailers are responding too. Perhaps, it's time for the Department to become **the catalytic leader** in closing the ranks between the producer, processor, wholesaler, retailer, other middle men, and the consumers who create worldwide demand.

I submit, therefore, a more appropriate and contemporary charter would be embraced if the name of this great governmental service were to be reconsidered. My initial suggestion would be the Department of Supply and Demand or the Department of Production and Distribution or something similar ... and its constituents would be not only our farm and livestock producers and crushers, but food processors, marketers, food distributors, agribusinesses, off-premise feeders, importers, exporters, traders, relevant financing groups and other appropriate bodies involved in feeding people with America's basic and processed agricultural products.

Now that I have gone out on the limb, I'm going to crawl out a step farther with a macro-concept for the Department. If the new administration wants to take a really bold step, they might consider combining Agriculture, Commerce and Labor and create the Department of Global Competition. In my opinion, the need is there and its time has come. With those bold suggestions, I will now return to my prescribed role.

When contemplating what marketing strategies I might suggest for agribusiness firms, I was reminded of a penetrating question that the Latin philosopher, Vergil, posed in his Aeneid: "Who ever asks whether the enemy were defeated by strategy or valor?" For me, that question helps explain some of the practices within the industry today. It also helps explain why some sectors fair better than others. But more importantly, it plants a seed that is translatable into new concepts and marketing strategies for agribusiness firms who are in marketing wars here and abroad.

That brings me to three marketing strategies for agribusiness firms:
1) The most appropriate marketing strategy for agribusiness today is to constantly seek out ways to add "customer value" to their products ... and to the services they provide to their customers.

Let me draw a parallel. Why do the Japanese almost always win their marketing wars in the industrial sector today? Is it on price alone? Perhaps, but I don't think that is the only reason. Subsidies aside, the principle reason is that they study their customers needs and then commit themselves totally to meeting their customers needs better than anyone else could meet them. Consider how they penetrated the U. S. automobile market. For a many years in the 60s and 70s we manufactured too many cars that we wanted we produce because it met organizational objectives, not consumers desires. That created a void in the U.S. marketplace. The Japanese studied the situation carefully, then added new value in both product and service to fill that void. You all know that story. It has been repeated in other industries as well.

2) A second marketing strategy is to reassess the language and terms used in agribusiness to make sure they are compatible with profit objectives.

Many terms that are used and cherished today actually influence not only the way business is done but the margins that are attainable. The first term I think of is "commodities," those articles of trade and commerce, especially products as distinguished from services in an economy that has become service oriented. I suggest that agribusinesses search for a complimentary reference to use with "commodity." The term "commodity" doesn't communicate any value-added dimension. Since it doesn't, we treat it as a constant from year to year rather than seeking ways to enhance its worth beyond the supply/demand equation. Perhaps a more effective reference might be "food asset" or "customer asset." As with all assets, the owner will always try to create new ways to improve the value of his assets - rather than treating them defensively - before selling them to the customer. When an agribusiness firm can tailor his services to his customer's needs, those "food assets" and "customer assets" are enhanced and the return to the seller will increase. Therein lies an unturned key to successful marketing strategies for agribusiness firms in the future.

3) The third marketing strategy I suggest is this: earn a reputation for dependability in both product quality and in customer service.

As the world grows smaller, more and more cultures will interact upon the agribusiness scene. I am reminded when my son started his business career with Cargill. That gave me a small window into their marketing strategies. I used to wonder how Cargill was able to get Russia's grain business. They sell commodities at market price, not low bargain prices. Soon I realized that Cargill had won the respect of the Russians for its dependability. The Russians know that Cargill could be relied upon to deliver whatever they promised, whenever they promised it.

SUMMARY

What I am saying to agribusiness firms is this: create marketing strategies that demand that you constantly re-assess the markets you serve; strategies that demand that you and your people stay close to your customers and their businesses. Then have the self-discipline to regularly deliver what your customer expects in service, quality, dependability, and price but don't rely exclusively on cheap commodity pricing as your only marketing weapon in the future.

As a nation we might slide backwards if all we do is produce corn and other commodities cheaper. As the world we live in becomes more sophisticated, the raw material itself can become more flexible in value. If we are the world's low cost producers, that by itself still may not be enough. Let me refer to Japan once again. They have few raw materials but they continue to advance their per capita income because what they do is constantly assess the markets they want to serve, take raw materials from where they can get them and translate them into whatever their customers want ... and usually do it better than anyone else could do it. That's a solid marketing strategy.

We are blessed and burdened by a legacy of plentiful supply; not much historical competition; and serving markets that haven't developed a sophisticated demand for value-added commodities and products. But that era may not last forever. **Think about it.**

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MARKETING DEMAND AND MARKETING STRATEGIES: PANEL DISCUSSION*

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Curt Beatty
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Gene D. Hoffman
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MR. TRACY: Gordon, I'm going to start with you. There are a number of questions for you, some of which are along the same line here. One is as follows: most of Campbell's foreign sales come from foreign subsidiaries, rather than from exports. Will reduced trade barriers result in a substantial increase in Campbell's export sales?

A related question is, what are the U.S. Industries' weakest areas in competition with foreign food companies?

MR. MCGOVERN: Well, Alan, I think we're not going to see an awful lot of big increases in what we export. I think where we see good opportunities would be in developing businesses where we're actually producing overseas, and then developing that strength and being able to bring back the technology and, in effect, give Americans the benefit of world class performance.

I think the weaknesses we've got in the United States relate to a potpourri of things. I think we've got accounting weaknesses that give overseas companies the chance to snatch up and buy a lot of American operations at prices that our

*Based on a transcript.

accounting processes don't recognize. I think we've got technological weaknesses in many parts of our business. It was mentioned earlier in the case of meat processing, for instance, and that's true of many industries, that we're still struggling to attain the highest possible rate of efficiency. So I would say that the weaknesses we're seeing perhaps go back to the attitude that came out of World War II: that we pretty much had it all, and that we knew that we were number one and could stay that way. What's happened is that we've had a lot of people innovate and go beyond us.

MR. TRACY: Okay, the next question is for you, Curt: a couple of related questions again. Your excellent analysis of marketing in Japan encourages those who are studying the marketing of food in a given country. Why does USDA give so much more emphasis to exports by commodity than by country?

MR. BEATTY: Well, I'm not sure that they do. What the USDA has done with the TEA funds is to look at the market where there is the possibility of increasing exports. Japan has been a focus of that because of some of the things that I said.

In the U.S. Meat Export Federation, we try not to look necessarily at commodities or at countries alone; we try to match them up. In the United States Department of Agriculture, with its TEA funds, we have looked at where we could best have the best opportunity of increasing the meat exports by concentrating on that country. In the last three to four years, of course, that has been in Asia and primarily in Japan.

This, along with the work of Lyng and Yeutter, has paid off in taking the quota system out of Japan in three years; then that will be an open market. I think, at this point, we'll look at other countries with other commodities, at where we can best penetrate that market.

MR. TRACY: Okay, there are about three questions for you that refer to Japanese purchases, Curt: of cow-calf operations, feed operations and slaughter operations. They all ask the whether the U.S. can compete, not just abroad, but even here in the U.S.

MR. BEATTY: Well, we sure hope that we can compete. Yes, I don't think there's any doubt. There are going to be specialized operations that will cause the Japanese to come here to raise a certain kind of cattle and complete the operation here because of the labor factor and the high quality beef that we've got here.

The one thing the Japanese have to look at is that there's certain pieces and parts of that animal that sell better in Japan. Primarily, they would like to take those back to Japan, but when you slaughter hogs and when you slaughter cattle, you've got to sell the whole thing. The Japanese may have some problems here in operating within the U.S.

One of the things that we have been able to do is to go to the export market, sell the customer the kind of product that he wants to have, then use the rest of the carcass here in the United States and be able to market it here. The Japanese may have some problem doing some of that, unless they take the whole thing there. I think, in this day and age, that we can operate here in our country as well as a Japanese operation can.

MR. TRACY: The questioners also refer to Japanese purchases of production facilities in Australia and New Zealand.

MR. BEATTY: The same thing goes there. The Japanese can see, with the beef market opening up, that there's a tremendous amount of beef that will be imported into Japan.

Some of your larger corporations, trading companies, and those that are consolidated with other operations, can see that this will be a tremendous market. They will raise the kind of cattle, cut it to Japanese specifications, and take it to Japan. This is the same thing that I have said: we have a tremendous opportunity here in the U.S., as a U.S. business, to export there. We'll be competing with them, and if we can do it on a price basis and give the customers what they want, we can do it as well as the Japanese can.

MR. TRACY: Okay, Dr. Allen?

DR. ALLEN: I think one of the intriguing things, Curt, is that Tom and I have been doing a lot of analysis of the domestic market for beef and pork and lamb. We're talking about meeting the needs of foreign markets, and a living case history is your company's response to it. I think, to be candid, in this country, we have a long way to go before we meet our primary core market here, in terms of providing meats in the desired form, place, and convenience. You know, you put that whole list up there, and I think fresh meats are wanting.

You dropped a little nugget, which I thought was intriguing, that perhaps we're learning what we need to do for our domestic market through the experience that we're having with foreign markets; and I think that was the thrust of the question that was raised here. You know, you look at meats and the meat departments in supermarkets, Gene, and you find that they are still the largest departments, and probably the departments where we're still selling commodities and not the food that people want.

I'd like to see this panel address the question of whether we can bootstrap our fresh meat industry, and maybe even part of our fresh produce industry, to do what it ought to be doing in terms of meeting consumer wants and needs, because we're not doing it yet.

MR. TRACY: Any response from any of the panelists, briefly?

MR. HOFFMAN: You know, if you look in the supermarket and you look at the new products, the great majority of new products -- meat, poultry, and seafood for the most part -- are occurring in the frozen food case rather than in the fresh meat case. I would complement Jack's point by saying that that's a great unserved marketing challenge for both agriculture and the food industry.

MR. TRACY: Another question for Mr. McGovern; actually there are three questions, related to each other. What changes in North American food processing do you anticipate as the result of the Canada-U.S. free trade agreement and, similarly, what specifically will that mean to the Campbell Soup Company and how it does business in Canada with the opportunities presented?

MR. MCGOVERN: I think there's going to be a lot of excitement in the Canadian-American relationship over the next 5 to 10 years. We are up there

with soup and mushrooms making things, and we're looking at how those things are going to work out in the next few years. And I think the Canadians have a large number of wonderful resources up there, and they're now pledging themselves to get very competitive. Our folks in the Toronto plant have decided that they're going to get as competitive in their costs as the best American soup plant.

So I would see that this will be a gradual thing, but over the period of 5 or 10 years, we're going to have a build-up of trade and really effect a push toward efficiency in Canada and the United States. The results are going to be very beneficial. So our company was pleased with that agreement and we think that it'll be efficient.

MR. TRACY: Professor Allen, we have a dairy farmer in the audience, and since I'm from Wisconsin, I have to recognize such a person. Milk has not been specifically mentioned here today, and yet, according to the writer's perspective, it contains all the perceived benefits of all the products that you laid out, except excitement. He wants to know how you can make milk more exciting.

DR. ALLEN: Well, as you may know, there've been a fair amount of efforts to try and make milk more exciting. We're talking about things like carbonated milk. There are some technological problems associated with carbonated milk.

If you're in doubt about the excitement of milk, just think about this. When children are at home, they often will have milk because it's good for them, right? Parents will often insist upon that. When we go out to restaurants, the situation is frequently different; the children are often allowed to have soft drinks.

I think there are some opportunities to make milk a more exciting beverage. We've tried flavorings; I wonder if we've tried them enough. I wonder how much research has been done to add some excitement to milk.

You know, I was interested in Curt's comment when he was at the podium. He said that if we look to the future, we've got some real research and development challenges out there. I think in the area of milk, to add excitement to it, to add variety to it, I think we have marketing challenges to really know what would put variety and excitement into milk as a beverage, because, as you said, Alan, it does have so much associated with it.

Let me close with a question that some of my colleagues up here might want to address. When we look at the future of our food industries, agriculture and food, where's the research going to be done? Who's going to be doing the research? How much will be done in our manufacturing corporations? Are retailers going to do research? Who's going to do the research to find some of these answers to improve products?

I know the question came on milk, but maybe we could address that question somewhat more broadly.

PANELIST: Let me talk about milk. Milk, in my opinion, is considered a commodity. The mentality of how you deal with milk is a commodity mentality. When you take that same ingredient or commodity, milk, and put it into ice

cream, all of a sudden you see some of the imaginative thinking that has taken place.

Today, the ice cream industry is about twice the dollar volume that it had with the same degree of consumption, simply because of the innovative approach to marketing ice cream to a diet-conscious, health-conscious nation, by making it richer, with more fat, but tasting incredibly good. And I am saying we are the enemy because we consider milk a commodity rather than a product that has consumer value. For some reason, we don't try to seek out those values until milk enters into a byproduct or secondary processing activity.

MR. TRACY: Gene, do you suppose that has something to do with the government's involvement in the pricing of the two commodities? We're not directly involved in the pricing of ice cream.

MR. HOFFMAN: I would say the government ought to stay out of ice cream.

MR. TRACY: I wasn't making offense. What'd I have to drink with my lunch today, Gene? I just want this on the record.

MR. HOFFMAN: Milk.

MR. TRACY: Okay, thank you.

Several questions, Gordon, about takeover activities, and that's how Campbell's thinks corporate takeovers in the food business affect competitiveness. And I guess a related question is whether Campbell's is vulnerable. How will it affect your ability to be innovative and competitive over the long run? What are potential repercussions for the food consumer? Do you expect more merger activity and concentration in the future?

MR. MCGOVERN: Well, that's a hot topic for everybody today. I think everybody pretty much agrees that we haven't seen the end of it. We're going to see more of it because of the way the economics are set up. The Wall Street financial markets are not pricing companies in the United States at the value that other people put on them. That results in constant pressure to break up companies and sell off the pieces for a high price. And that's being abetted, certainly, by the financial community and by the investment community.

So we have a lot more of it to come, I think. When it's done in a leveraged format, you're dealing with the issue of not being able to afford anything but the interest payments. And that does bring us back to the point that the research end of the business is going to take a licking, and I think that's a very significant thing for us. I think the investment part of the businesses also are going to take lickings, because you can't do anything but cover that interest.

For us particularly, it's meant that when Cheeseborough Ponds gets picked up by Unilever, that means our Prego is fighting not Ragu and Cheeseborough Ponds; it's fighting Ragu and Unilever. And that's quite a different thing. Unilever's been known to stay in a market for 10 years and lose money, just to make sure that it's there. And it can do that on a universal, global basis because it's got lots of resources to play against one market versus another.

So I think that is one of the underlying questions for us now is how big do you have to be to be global in this business. And I think it's certainly looking like something north of \$8-12 billion for an American company to be world-competitive today.

So I think we're tentative. We're not looking at these things as the end of the world, but it's certainly providing a different climate of competitiveness. And the companies that are forcing their way through the American market with great power and strength -- Nestle is a good example -- are formidable. And I think we'd better get really straightened out in our costs and our value systems and our ability to compete if we're going to compete with those kinds of people.

MR. HOFFMAN: Let me just lay out two other interesting aspects of that. First of all, I think the consolidation aspect is going to continue until there's just one of each, a supplier and a retailer and a farmer. But right now, 20 food manufacturers supply over half of the products that are sold in supermarkets. And over half of the supermarkets and mass marketers sell half of the product that's sold at retail in the United States.

So we have changed the dimensions of what's going on in this country tremendously. And whether it's right or wrong is a secondary issue at the moment; it has to be corrected on a different platform. But it emphasizes the fact that since so much volume is being controlled by fewer and fewer people, it emphasizes the need to know how you deal with those customers that are starting to control the supply-demand sector after it leaves agriculture.

DR. ALLEN: One of the things that we observe in the food industry is that a lot of front-rank food companies have resulted from the acquisition of truly small, innovative firms. And with the restructuring and, indeed, compounded by the kind of trade practices we have by retailers and suppliers, I wonder if it shuts off the historic flow of innovation into the food system. And the other thing that bothers me, where you have companies, retailers, and manufacturers that are struggling to cope with huge debts, resulting in a retrenchment in terms of true R&D -- product development or value-added -- I wonder if this has negative long-term implications for agriculture.

You know, there's something that should be straightened out here. We don't intend to indicate in the real world that farmers are actually, in every case, the ones to do the value-added steps. But they have to be partners in a food system where that activity is going on, and be very mindful of fitting their products and services into the process where value-added is going on.

If you have a food system that retrenches for a period of time, I'm wondering if you have consumers, on the one hand, whose needs are being met effectively and agriculture, on the other hand, where there would be a tendency to leave those commodities in that undeveloped form. And I think this is a very serious issue that needs to be aired.

MR. TRACY: Any comments on that from any of the panelists?

MR. HOFFMAN: Well, I tend to agree with that. I think that we've got a phenomenon going on which is a little bit outside of the agricultural sector. But we're now having a situation where a lot of innovative and entrepreneurial

companies bump up against problems in the retail sector such as heavier and heavier entrance allowances, getting into the warehouse, slotting allowances, and things of this nature. And I think that's a very inhibiting factor.

Everything that I think we've been saying in the last few minutes, after the question about R&D was posed, I think are very vital questions. I don't think that debt, when it goes to the extent that it's gone in terms of leveraged buy-outs and all the other things that we've talked about, really serves the basic consumer. Fundamentally, I think we're losing sight in the food business of the fact that our fundamental challenge is to feed consumers in the most efficient and inexpensive possible way. That, of course, also implies that we have to fulfill their expanding needs because of their economic wherewithal.

And I would think, if I go back to my editorial, again, that, well, each of us talking to these kinds of problems is kind of like wringing our hands. It seems to me that this might be a very interesting kind of a role for a task force or for the Department of Agriculture to take in applying some leadership in bringing all these forces together in the best interest of the citizens of the United States.

MR. TRACY: A couple of questions for you, Ron. Regarding your farming operation, one questioner wants to know how you priced or sold your corn crop in 1988, and do you think you did better than your neighbors; and then, also, your suggestions about how to handle the planting of soybeans on base acres of other crops this coming year.

MR. RAIKES: No comment on that first question. On the second one, I did cover it on my surveys, and basically what I found out probably reinforces the other things I found out: namely, that producers are making that decision strictly on a production basis. What we're talking about is a provision of the drought relief bill that gives producers the option to switch up to 25 percent of their feed grain base into soybeans without the problems of losing feed grain base in later years.

One guy had a farm with a 100 percent feed grain base that he had been planting to feed grains year after year in order to maintain that base. He said he would take the opportunity to switch some of it out in order to deal with production problems such as weeds, and so on. Others answered that they would not shift any out, especially if they did not have much of a feed grain base.

The thing that concerns me is that most of the producers have not really, at least when I talked to them, looked at the question of whether the market is suggesting that they make this shift or not. And it is a new question -- well, it is and it isn't. You're still talking about soybeans comparing, profit-wise, with feed grains that are based on target prices.

In response to the first part, I will respond a little bit. I did, I think, maybe do slightly better with pricing, particularly with the soybean crop, during the growing season. With the corn crop, I was sort of lulled to sleep by the notion of pricing some of it. I did, and I thought I didn't need to worry too much because I still had my target price protection. Well, I don't think that was a wise decision, in retrospect.

MR. TRACY: Okay, thank you.

Let's get back to the grocery store now. Mr. McGovern, there's a question here regarding the slotting of space on grocery market shelves, and whether that's detrimental or beneficial to customers.

MR. MCGOVERN: A few weeks ago I was on a panel of the Frozen Food Association, where this was discussed with great heat by both retailers and manufacturers. The manufacturers look upon slotting allowances as extortion, and you can think of it that way. The retailers say that they have only limited space, and that this is a way of controlling it and keeping manufacturers from going hog-wild with new products and things that retailers can't handle. And there were ample statistics on both sides for both points.

I think there has to be a more efficient way of looking at slotting allowances. The Food Marketing Institute and the Grocery Manufacturers of America are jointly going to study the whole area of new product costs and see just exactly what it does cost to get into the store. We hope that we can set up some guidelines that will at least give the smaller entrepreneurs a chance to get into the marketplace and not have to pay \$25,000 a store and such things as we hear about on the marketplace. Campbell does not pay a slotting allowance.

MR. TRACY: Several questions are addressed to several different people on the panel; I'll just ask all of you. How can a farmer, a grain farmer or somebody else, add value to his bulk commodity and boost his profit? How concerned should farmers be about the fact that they are receiving a smaller and smaller percentage of the total consumer dollar? These are very closely related questions.

Does anyone care to take a stab at that? Tom or Jack, do you want to start? Are there any suggestions? Ron, go ahead.

MR. RAIKES: Well, I guess the only thing I would say is that I think from an accounting standpoint, your percentage of the retail food dollar is not really one of the number one considerations. So in that regard, I would say that there is probably not a whole lot of concern.

I do feel concern that the concerns of farmers seem so different than the concerns of other people that they deal with down the line. And, of course, this gets to the question of how do you add value to commodity products at the farm level, and that's a tough one. There have been some people that have done some things in sort of a small way, but I don't know of any really large-scale operations that as yet have been successful.

DR. ALLEN: Okay, how are we going to turn raw commodities or fruits and vegetables into value-added products? Well, there are people outside the industry coming down and saying that something can happen. There are people who have been in the beef or pork or poultry business that have a product idea and go around looking for producers that want to play in that game. Amazingly enough, they're hard to find because, Gene, back to your point, when you're feeling comfortable or surviving, it's tough to change.

I don't think there's one generalization to a commodity problem. I think you've got individual consumer segments, processors, people with an idea. There will be that 3 percent, 5 percent, 10 percent, 20 percent that will play the value-added game.

MR. HOFFMAN: This doesn't relate to grains, but, you know, I can remember about 20 years ago when among the things for which I was responsible was a broiler operation in Arkansas. And those were the days when broilers were all ice-packed, and 29 cents was the retail price, as it had been for five, 10 years. It was a straight commodity. You, the producers, lost money two out of three years, and then after they had a good year, they always put more birds out, denied it, and then there was always overproduction, and then you lost the next two years.

It wasn't until the broiler industry came to grips with the fact that there was an opportunity to do some value-added things -- which I thought was amply demonstrated in your presentation, John and Tom -- that we did it. Now, today, the majority of the broiler industry is enjoying a great deal of value-added rewards for an item that was a commodity a couple of decades ago. Is that fair?

Let's take milk; let's hitchhike off the milk question and go to ice cream. Ice cream is fundamentally milk, flavoring, and sweeteners. Ice cream's a static industry. Tonnage really isn't up, but in terms of dollar value, it's up tremendously. And it's only up because of the tremendous marketing activities that have gone on with the people that market ice cream. Fundamentally, they have focused on a new way to appeal to changing consumer lifestyles and have done a marvelous job.

So I think that we're seeing examples. It's just a matter of time when we're going to see the pork and the beef complexes start showing evidence of value like this. You've got a product right now by Hormel, a company for whom I've got a lot of respect. It's a microwavable bacon in a package that you throw in, and it's cooked. You don't have to do a thing except cook it, open it and then eat it. It's about \$1.69 for, I think, for four, five, or six strips -- it's tremendously expensive in terms of commodity references. And those are the kinds of things which I think will eventually take commodity thinking and translate it into marketing thinking. The process is at work. I think the challenge is to tune your mind into it.

DR. ALLEN: Gordon, when you were with us two years ago, you said the bywords of today's society were chilled, fresh, natural. And now here comes this fresh prepared food category that many of us have commented on here.

If we're really going to take the quality level and put it up another six inches, is this going to create a market for agricultural products of an extraordinary degree of quality, for products handled in a way that goes beyond being just a crop, but includes the services and everything else that goes with it? Will this be a significant growing market for people in agriculture to hitch onto?

MR. MCGOVERN: Well, I think the answer to that is a loud yes. I think every major American food processor's in there just as hard as he can looking at the various aspects of that. Everybody's been over to Marks and Spencer about every other month, and they've taken a look at refrigerated; they've looked at take-out; they've looked at what's going on in the non-retail sectors, where a lot of this is coming along very strongly. And I think the conversion to fresh

and refrigerated chilled forms of food in the United States is going to present a real opportunity for agriculture, and I think it's going to tie in agriculture to the consumer rather quickly and in some rather interesting ways.

MR. TRACY: Two questions --

DR. PIERSON: Can I just add a final comment on this?

MR. TRACY: Go ahead.

DR. PIERSON: You know, it is often difficult for individual producers to do their own marketing or to find their own value-added niche. We gave you an example of the dark bread. Kidney beans is another example. We gave you an example of the sweet peppers, the different colors, the different varieties now. But those are relatively isolated examples.

A much broader example of growers influencing their own marketing future comes through, for example, the beef referendum that was passed about a year ago at this time, where beef producers decided to literally grab the bull by the horns and do some of the research that's essential to finding out what consumers want so that they in turn can expand demand for their products, so that producers can learn about what kinds of products are necessary for the future. That's another way that growers, perhaps not individually, but in group actions, can come together and influence their own marketing futures.

MR. TRACY: A couple of related questions. Mr. Beatty, why not beef? When's beef getting on board with high quality fresh as a convenience food, ready to cook?

MR. BEATTY: Well, the industry, as it's being integrated, is going in that direction. Morrell has gone even beyond that now to completely cooked steaks. Our company now operates and offers baby back ribs complete with barbecue sauce, boneless loins, those kinds of items that are complete convenience food.

I think that in the cattle business you're going to see premiums paid for specific weights and for specific grades of cattle more and more often. Again, this will probably result from what we have to do for Japan: to go with the prime and a very high choice, that is, cattle of a certain weight and a certain yield basis. We're offering better money to the producer for that kind of cattle.

As we get better cattle, we're going to spill over into the U.S. market in terms of giving higher quality, higher grade steaks that are probably better for you, have less fat cover on them, but enough marbling so that there's still flavor there. These things are evolving, little by little. As I said, the meat packing industry is probably one of the slowest ones to pick some of this up, but little by little it's coming.

MR. TRACY: If safety is so important to the consumer, who do so many processed foods still come loaded with fats? This was addressed to Tom Pierson, to start with.

DR. PIERSON: Thank you very much, Alan.

You know there are different consumers out there; we're not all alike. There's 240-some odd million of us; we're all somewhat different.

Gene Hoffman commented that the ice cream that has increased in sales the most recently is the super premium: higher in fat, higher in sugar, and so on. Because they're so great for us? No. It's because they taste extraordinarily good. You've got different consumers out there that want different kinds of products.

I think we are, as a society, becoming sensitized, over time, to nutritional issues. I think we care more, over time, about the safety issues. But that's not to say that we all behave that are totally consistent at all times with safety issues, with nutrition issues, and so on. Each of us behaves in ways that we might consider at times to be somewhat inconsistent. But we're thinking about it more than we ever have.

I nevertheless think the standards of nutrition and safety are going higher and higher as we, as a society, learn more and more about the issues.

MR. TRACY: Jack?

DR. ALLEN: I agree with what Tom said. I see Stan Emerline back there, who represents the meat supplying to the restaurant, National Meat Purveyors Association. Stan is a great advocate of beef and pork; and it's got to change, you know. By and large, we're overfeeding these animals. But Stan works with people who are in the business that serve customers that come in once a month, maybe, into a restaurant and want a very fine, finished, carefully trimmed, properly aged, ideally cooked and sauced piece of meat.

And so you might look at that and say, gee, the chemical fat on that thing is 12 percent, and the Heart Association is saying, oops, never go over 7 percent. And select beef is, on average, you know, 4 or 5 percent.

I think we have to recognize that in a segmented market fat is not necessarily bad.

A student in my class four years ago said, "Professor Allen, you're wrong in referring to junk food." She said, "There are no such things as junk food, there are junk diets." And I think what we have to do when we're fixing the commodity machine is recognize that there are markets, there are segments, there are niches, and there are appropriate foods for each of those.

And I know Gordon McGovern's going to agree with me because two years ago, when he was on campus, he went shopping in a grocery store and four or five of my students were privileged to tag along on your coattails, and that's where Gordon discovered the Dove Bar in a Meyers Supermarket in our little town of East Lansing. And he had a Dove Bar before he gave his evening address to our students. Well, Gordon looks in pretty good shape still, and that was not a junk food you were eating, but I bet you really had to bite down on the butter fat to get to the chocolate. I think we have to recognize that.

One other point is this, that I think, while I agree with Tom that we're becoming sensitized to nutrition and healthfulness, that we still are woefully illiterate on the subject. We don't know what we're doing most of the time

with respect to that.

And I'm wondering, Gene, who's the teacher here in terms of really providing information. I don't mean brainwashing, but I mean really providing the kind of information that we ought to have as consumers to make rational decisions in the marketplace. And I can tell you we're not making them now. Our children are so woefully out of shape. Now, the husband and wife may be out there jogging and pumping iron, but their kids are slobs. They can't do push-ups, they're not agile; and it's a serious problem.

And I see TV and radio programs on used cars and how to rebuild a car and how to invest in the financial market. I don't see anything that says, you know, food for thought or thought for food, one way or the other. I don't want to lay it on the USDA, but, clearly, the food manufacturers who are going brand against brand aren't doing this, with maybe a few exceptions in this room. But I think if we're going to really address safety and nutrition, somebody's got to be more affirmative in bringing some rationality to us.

MR. HOFFMAN: I agree with what you're saying, Jack, but, you know, you talk about various consumer segments. Remember, there are a lot of consumer segments that really want to eat potato chips and want to eat fat ice cream and want to eat fat in products because it tastes good. They might even know that it's bad for them, but they've made that choice. A lot of people continue to eat a lot of products that they know aren't good for them, for any number of reasons.

Manufacturers continue to put out tremendous amounts of sugar-coated cereals and any number of different things because people eat them. And yet, there's a tremendous amount of information out about safety.

I think Tom's right; I think there's more awareness of nutrition and dietary information than ever in the history of this country. But, fundamentally, there are countervailing forces: advertising, promotion, and, of course, just pure taste; rewarding yourself because you say that tastes good. You know, if you look at a grocery store today and go from year to year, that snack department, which is fundamentally corn chips, potato chips, and all those things, which are high in fat content, are growing and growing and growing. Now, you may not eat them, but somebody out there must be doing your share if you're not.

So we've got to recognize that we're in a very diverse marketplace with a lot of different modules, and each one of these modules are probably unlike other modules, and are causing various kinds of market niches to be formed. And some people like product that has fat because it adds to the taste.

DR. ALLEN: You're saying they're fully knowledgeable --

MR. HOFFMAN: That's the reason butter is still a very prominent product.

MR. TRACY: No, that's good for you.

MR. HOFFMAN: Because it tastes good, too.

MR. TRACY: We're going to close in just a minute, but I'm going to ask the panelists to think about whether they'd like to close with one or two sentences, and just look out to the future, point to some trend that you think's coming. I know it's hard to pick something out like that, but I'd like to just give you a chance to go right down the row in a second and give each of you a last comment.

Gordon?

MR. MCGOVERN: Well, I would just make one comment. I think that as we get older, we're getting more health-conscious; we're getting more interested in how our bodies work, and we're going to pay more attention to how we feed them and how we put the drink into them. And, therefore, I would say that one of the opportunities for agriculture and for the value-added segment is going to be attention to that, and that it goes right back to the farm. You can grow vegetables and fruits and all kinds of things, nuts, good example, and so forth, that are addressed to that segment. So I think we ought to keep a very healthy eye on that because it's going to grow.

MR. TRACY: Jack?

DR. ALLEN: I think I'll pass, thanks.

MR. TRACY: Ron?

MR. RAIKES: I guess I would just say that as a commodity producer, I look forward, to the time -- which I think will be soon -- that farmers get actively involved in pricing, which they haven't been; and eventually on down the road to the point where they get actively involved in satisfying the demands of consumers. I certainly don't think we're there now.

MR. TRACY: Gene?

MR. HOFFMAN: I think any time a society gets too comfortable with its way of life it tends to allow other societies to take its place; and I think that's what we are facing today.

MR. TRACY: Curt?

MR. BEATTY: Quite a few years ago, there was a musical where the main character said you've got to know the territory. The musical was "The Music Man." Those of us that are interested in exporting have got to know the territory. Get there, find out what the customer wants to buy, not what you want to produce. I've said it over and over again, but it's the truth. You've got to know the territory.

MR. TRACY: Dr. Pierson?

DR. PIERSON: I'll close with a short concern; it's somewhat self-serving. Coming from a university base, I am concerned with research. We talk about the tremendous opportunities out there that are associated with the changing consumer, changing society, changing environments that we're in. My concern is where are our research base is coming from. How are we going to meet the challenges of tomorrow without a really good, strong research base?

MR. TRACY: Well, I want to apologize to those of you who sent questions up that we couldn't get answered in the time allowed. There were a number of very good ones.

I want to thank John Lee and Jim Donald and Ewen Wilson, and everyone involved with the conference for helping to get us such a great panel of speakers as we've had this afternoon. And I want to ask you all to join me in thanking them.



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FOOD GRAIN OUTLOOK

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WORLD FOOD GRAINS SITUATION AND OUTLOOK

The dynamics of the 1988/89 world food grain situation has changed dramatically in the last year or two, from a focus on overproduction to a concern about short supplies. Although scarcity continues to be mentioned as a characteristic of this year's global situation, both wheat and rice utilization is expected to be only marginally below record levels. The forecast near-record disappearances will be accomplished by larger foreign production and by drawing down stocks accumulated from prior years. However, the 1989 crops will begin with the lowest stocks-to-use ratios (a measure of relative abundance or scarcity) for wheat and rice since the early 1970's.

The current situation highlights the ever-changing dynamics of the global grain market--swinging from a glut in supplies with low prices to a tightening in stocks and higher prices. It will be interesting to see how the competitive forces that shape the wheat and rice industries respond--can the market respond in one year and increase production and show some rebuilding of stocks or will the world be faced with a year of short supplies?

THIS YEAR'S DOMESTIC OUTLOOK

1988/89 Production

The focus of this year's domestic situation has been on the drought-reduced crops in North America. The drought hit the Northern Plains the hardest, devastating the U.S. Spring and Durum crops. These crops were only about one-half the level of 1987. Sharply reduced yields and higher acreage abandonment reduced the size of the crops to the smallest since the early 1960's. Significant shifts have also occurred in the winter wheat producing regions. Hard Red Winter (HRW) production declined to the lowest level in a decade due to an increase in acreage enrolled in the Conservation Reserve Program and unfavorable weather and disease conditions prior to harvest. Hot dry weather and disease problems, including wheat streak mosaic, hurt yields in the Southern Great Plains. Record yields and increased acreage boosted the Soft Red Winter (SRW) crop about 36 percent from the previous year, but still well below the levels attained in the first half of the decade. The size of the White wheat crop was virtually unchanged from 1987. Improved moisture conditions that existed after the crop broke dormancy more than made up for one of the driest, if not the driest, conditions prior to that time.

1988/89 Disappearance

Total disappearance of U.S. wheat in 1988/89 is forecast to be the fourth highest, despite a smaller carryin and lower production.

Domestic

Domestic use will continue around 1.1 billion bushels, about the same level as the previous 5 years. Food use of wheat has shown a steady increase, while the wheat feed and residual category has fluctuated between 280 million bushels and slightly over 400 million bushels during the past 5 years. Expectations are that the wheat feed and residual category in 1988/89 will fall towards the low end of the range. However, feed and residual is a difficult category to forecast because of the unknown "residual" component. This category encompasses potential errors in measurement of the other elements of the supply and demand such as production, exports and stocks.

Exports

U.S. exports are expected to fall about 9 percent to 1,450 million bushels. However, because of lower world trade, U.S. export promotion programs, and the smaller supplies of foreign exporters, the U.S. share of world exports is expected to be about 43 percent, the highest since 1981/82.

Farm Prices

The season average market price for wheat is expected to be between \$3.55 and \$3.85 a bushel, up from \$2.57 in 1987. The smallest supply in a decade and continued large disappearance will combine to reduce ending stocks to the lowest level since the mid-1970's. These supply and demand factors are forecast to result in the lowest stocks-to-use ratio since 1973/74.

GOVERNMENT PROGRAMS

Disaster Assistance Act of 1988

In response to the drought, Congress passed the Disaster Assistance Act of 1988, signed by the President on August 11, 1988. The Act contains several provisions relating to wheat, with the most important one being to disaster payments for crop loss.

Producers with gross annual revenues less than \$2 million are eligible for emergency crop loss assistance on crop losses greater than 35 percent of normal production. Two payment levels have been established:

(1) Sixty-five percent of the payment rate on losses between 35 and 75 percent of normal production and (2) Ninety percent of the payment rate for crop losses greater than 75 percent of normal production.

The payment rate for wheat program participants will be set at the target price of \$4.23 per bushel. For nonparticipants, the payment rate will be the county loan rate (national average of \$2.21). Payments by nonparticipants will also be reduced by the acreage reduction factor of 27.5 percent. It is estimated that wheat producers, primarily spring and durum growers, will receive \$200-\$300 million in crop loss assistance.

Producers who receive these payments will be required to refund advance deficiency payments for any bushels they received crop loss assistance payments. However, producers will not be required to refund advance deficiency payments on the first 35 percent loss on normal production. The refund of deficiency payments by those producers receiving disaster payments may total \$75 million. Producers may also be required to purchase multiperil crop insurance under the Federal Crop Insurance Act for the 1989 crop if their crop loss is in excess of 65 percent of normal production.

Conservation Reserve Program (CRP)

The CRP was established to conserve and improve soil and water resources by taking highly erodible land out of production for a 10-year period. More wheat land has been taken out of production than for any other commodity. Through the sixth signup, the reserve has removed 7.6 million acres from the wheat base out of a total of 25.5 million acres enrolled. Data for the seventh signup are not available at the time of this writing. It is anticipated that up to 2 million more wheat base acres may be entered into the reserve for the 1989 crop-year.

1988 and 1989 Acreage Reduction Programs (ARPs)

The 1989 ARP level is set at 10 percent, down from 27.5 percent in 1988. Because June 1, 1989, stocks will be below 1 billion bushels, the Secretary was required to announce an ARP no greater than 20 percent. The signup period for the 1989 crop will begin December 19 and end April 14.

The 10-percent ARP resulted in the best balance among stock levels, exports, farm income and budget considerations. The 10-percent ARP will also minimize any long-term damage associated with the drought by ensuring adequate supplies for the domestic and international markets and signaling to our competitors and foreign customers our intentions of remaining a competitive force in the international markets. A comparison of the program parameters is summarized in the table below.

	1988	1989
	- - - - \$/bushel - - - -	
Target Price	4.23	4.10
Basic Loan Rate	2.76	2.57
Announced Loan Rate	2.21	2.06
Season Average Farm Price	3.70*	3.40-3.80*
5-Month Farm Price	3.58*	3.40-3.80*
Expected Deficiency Payment Rate	.65*	.30-.70*
0/92 Guaranteed Deficiency Payment Rate	1.53	.30-.70*
	- - - - Percent - - - -	
ARP	27.5	10
Participation Rate	85	70-80*
* Estimates		

NEXT YEAR'S DOMESTIC OUTLOOK

Because of a lower ARP and continued high prices at planting time, U.S. planted acres are expected to increase by 13 to 15 million. Using trend yields of around 38 bushels per acre would give a production increase of around 40 percent in 1989/90. With forecast carryin stocks of a little more than 525 million bushels, total supplies may be about the same as this year. Given the evidence of the past 5 years and forecasts for 1988/89, domestic use may show little change from 1988/89. Thus, exports will again be one major factor in determining ending stocks and prices. This leads me into the current world wheat situation and some brief comments about potential prospects for 1989/90.

WORLD WHEAT SITUATION

For those of us who follow the international wheat market, 1988/89 will be a year to remember. After years of oversupply, the world wheat market has had to adjust to a situation in 1988/89 where stocks in most countries are likely to be drawn down to near pipeline levels. Policy makers have had to switch their focus, at least in the shortrun, from how to handle surpluses to how to allocate scarce wheat resources among the many demands. The market place has reacted to this turn of events by sharply bidding up wheat prices. For example, U.S. Hard Red Winter F.O.B. Gulf recently traded at \$165 per ton, around \$50 above the year earlier level and the highest level since the 1985 Food Security Act took effect.

1988/89 Production

There are a number of factors that must be looked at if one is to put the 1988/89 world wheat marketing year into perspective. Area devoted to wheat

production declined again in 1988. In fact, world wheat area has declined in 6 of the last 7 years. For the 1988 crop, the U.S. announced in the summer of 1987 that wheat farmers would again be asked to hold a significant area out of wheat production. Remember, in the summer of 1987 supplies were still large and there was no hint of drought. In addition, a period of declining wheat prices and uncertainty about the future worked to limit wheat plantings for 1988 in many other countries. On top of that, adverse weather reduced wheat yields in a number of important growing regions. Thus, world wheat production still showed a fractional decline from the preceding year. But probably a more important consideration than the total wheat outturn was production results in the world's major exporting countries (including the U.S.) where production dropped by 14 million tons. Normally, a decline of this magnitude would be of little concern as stocks could be drawn on to meet any surprise surge in import demand. However, over the past 2 years stocks have been pulled down sharply, dramatically reducing the stock cushion.

1988/89 Disappearance

World wheat use in 1988/89 is currently projected at a near-record 534 million tons. Consumption will be maintained despite the fact that wheat prices are sharply higher. Since the mid-1970's, world wheat consumption has been increasing steadily, with wheat food use growing at an annual rate of around 3 percent. In addition, wheat has been an important feed ingredient. In the last few years, a number of countries have again imported feed quality wheat from two of the major exporters, Australia and Canada, and generally higher prices for wheat are likely to reduce the amount of feed wheat trade in 1988/89.

1988/89 Trade

World wheat trade in 1988/89 is projected at around 93 million tons, almost 12 million tons below the near-record year earlier level. Most of this year's decline can be traced to smaller imports by the USSR, China, Brazil, Korea, Eastern Europe, and some middle eastern countries. The reason for reduced imports range from: larger domestic wheat supplies, a switch from feed wheat back to coarse grain, and to a slow down in imports following a year of heavy wheat stockpiling.

A combination of drought and reduced stocks has resulted in the tightest supplies of high quality milling wheat in years. The short-term effect of the sharply high export prices for all types of wheat is still coming into focus. Buyers reacted to higher prices by delaying purchases at the beginning of the 1988/89 marketing year; however, as the price rise slowed or even reversed in early fall, buying picked up. But many countries still appear to be limiting or delaying purchases. A major uncertainty for the balance of the 1988/89 marketing year is whether the pace of buying will accelerate as Southern Hemisphere exportable supplies become readily available. This scenario could mean higher prices in the near-term as buyers move to cover the balance of their 1988/89 import programs followed by late 1988/89 season price weakness as buying activity shifts to new crop.

One must keep in mind that there is a chance that importers will react to tight supplies and rising prices by limiting wheat imports until 1989 wheat supplies come on stream.

1988/89 Stocks

The world's wheat stock situation has become an important focal point for debate this year. The increase in world wheat stocks over the past decade or so has been almost continuous, with some retrenchment in the early 1980's. Stockpiles grew to a record 175 million tons at the end of the 1986/87 marketing year, from around 113 million in 1981/82. The stocks-to-use ratio in 1985/86 and 1986/87 were at levels not seen since the late 1960's and were weighing on prices. However, what took 5 years to accumulate will nearly disappear in just 2 years. Wheat stocks at the end of the 1988/89 marketing year are expected to fall to only 112 million tons. Three factors have contributed to this sharp reversal. Restrictive programs and low prices have combined to reduce production both in the U.S. and elsewhere. For the second consecutive year, weather also reduced crop prospects in a number of countries. Lower wheat prices, which were spawned by the Food Security Act of 1985, encouraged consumption world-wide while reducing the incentives to produce. Thus, the stage was set for a significant drawdown in stocks this year. World wheat use has exceeded 500 million tons for 3 consecutive years, averaging 531 million. In sharp contrast, only in 1986/87 did production approach 530 million with the following 2 years showing crops of only slightly over 500 million. That helps to explain why we have had to draw so heavily on our resources. The fact that these reserves are likely to become concernably low by the end of the 1988/89 marketing year is evidenced by the stocks to utilization comparisons. At the end of the 1988/89 marketing year, stocks as a percent of use will total only 21 percent. Not since the early 1970's have world wheat stockpiles been this small relative to use.

NEXT YEAR'S GLOBAL WHEAT OUTLOOK

Area devoted to wheat around the world in 1989 is likely to show the first upturn since 1984. The combination of less restrictive area reduction programs, higher domestic guarantees to producers, and stronger prices should result in an increase in wheat area in a number of countries. However, the increase in wheat area may be tempered as strong prices for competing crops and the typical lag in gearing up for wheat production may limit the area expansion next year. Total harvested area could approach 230-232 million hectares, not much difference from the average area during the 1982-86 period but about 5 to 6 percent above the 1988 level.

Planting Expectations

As planting begins in the Northern Hemisphere winter wheat regions for the 1989/90 marketing year, it is useful to consider the factors affecting intentions for our major export competitors. Agricultural policies and planting prices of competing crops are major factors which affect planting intentions. Additional factors this year are: (1) the North American

drought; (2) low world stocks; and (3) a lower acreage reduction requirement in the U.S. for wheat.

Canada

Most of Canada's wheat is spring wheat and is planted in the three Western Prairie Provinces of Alberta, Saskatchewan, and Manitoba. Wheat land has few production alternatives, but does substitute marginally with barley and rapeseed/canola. Producers typically seed wheat in the spring months of May and June, and harvest in August and September.

Wheat area is expected to increase in 1989/90 due to their low stocks and higher world wheat prices. Canadian wheat area increased gradually from the early 1980's to 14.2 million hectares in 1986/87. Harvested area, however, declined to 13.5 million hectares in 1987/88 and dropped further to an estimated 12.9 in 1988/89 due to the reduced plantings and the drought.

A number of factors have occurred this year which are expected to have a significant effect on Canadian wheat plantings for 1988/89. The drought reduced 1988/89 Canadian wheat production by around 40 percent and year-end stocks by 18 percent from the year before which were already down 43 percent below 1986/87. In addition, the 1988/89 wheat initial price, a guaranteed price set by the Canadian Government, increased by \$50 from the year before to CA\$170 per metric ton (No. 1 CWRS) due to stronger world prices. Canadian producers could also still receive a final payment (a payment paid to producers by the CWB if pool returns exceed the initial payment). Therefore, the combination of lower Canadian and world wheat stocks, the higher initial price for 1989/90 and an expected final payment for 1988/89 are forecast to boost wheat plantings in 1989.

Australia

Australian wheat production is concentrated in the so-called "wheat-sheep" zone that lies in Queensland and New South Wales, and in the coastal regions of South and Western Australia. Wheat in the wheat-sheep region competes predominately with wool and beef production. Wheat in the arid Western regions compete with lupines and field peas. Wheat is typically planted from May through July and harvested during the summer months of October through January. Most of the crop is marketed through the Australian Wheat Board, which supports minimum producer prices via the Guaranteed Minimum Price (GMP). The preliminary GMP for 1988/89 is AU\$150.60 (ASW), up from AU\$144.00 the year before.

Wheat area is not expected to change appreciably in 1989/90 from the year before because of expectations of continued high Australian beef and wool prices, and expectations of lower world wheat prices in early 1990 following the North American harvest. Wool prices more than doubled from the year before due to a strong increase in world demand for wool and reduced Australian stocks. This demand is expected to continue through 1988/89 and into 1989/90.

Australian saleyard prices for beef also rose substantially in 1987/88, and may rise an additional 8 percent in 1988/89. The rise in wool and beef prices, coupled with low world wheat prices, contributed to the drop in Australian wheat plantings from 11.3 million hectares in 1986/87 to 9.1 million in 1987/88. Harvested area is expected to be 9.0 in 1988/89 as producers shift into pasture.

European Community

The European Community (EC) is a major wheat producer, importer, and exporter of wheat. The EC plants mainly winter wheat varieties during the fall months of October and November, and harvests from June through August.

The EC, in general, produces soft wheats under high internal price supports, and imports harder wheats with higher protein contents for blending purposes.

The Common Agricultural Policy (CAP) provides the basis for agricultural support in the EC. The "intervention price" supports EC farm prices well above the world price.

CAP reforms have been introduced in recent years to slow the increase in production by effectively lowering support prices and limiting the quantity of grain eligible for that support. An automatic stabilizer has been introduced for grains which reduces the support price for the next marketing year when wheat and coarse grain production exceeds a "Maximum Guaranteed Quantity" (MGQ). EC grain production for 1988/89 is expected to exceed the MGQ of 160 million metric tons. EC producers will therefore not be refunded all of the "extra" 3 percent levy they were required to pay during the 1988/89 marketing year. In addition, support prices for the 1989/90 marketing year will be cut by 3 percent. A multiyear set-aside program has also been introduced to complement the automatic stabilizer mechanism by withdrawing land from production. Participation in the program is mandatory for each member country but optional for producers within the countries. Progress on the program has been low and expectations are for low participation for 1988/89 since many of the member countries do not have an EC approved plan in place.

Area harvested has varied little over the past 15 years, but has declined slightly since the early 1980's as the effective support price for wheat fell relatively to oilseeds. Wheat area is estimated to have dropped 3 percent in 1988/89 to 15.5 million hectares, partially because of unfavorable planting weather in the fall of 1987. EC wheat area may not change much in 1989/90 despite recent CAP reforms. Changes in area may result from weather conditions at planting, but increases in area due to higher world prices are unlikely because farmers are shielded from shifts in world prices. A 3-percent drop in the EC intervention price for 1989/90 combined with low participation in the set-aside program is not expected to result in a substantial change in seeded area of wheat for 1989/90.

Argentina

Most Argentine wheat is grown in the Pampa region which consists of approximately 73 million hectares, 20 percent of which is used for crop production and the remainder used for cattle production. Argentine wheat is seeded in June and July, and harvested in November and December. Plantings were made this past June/July under very dry conditions. Harvest is to begin this month and estimates place production at 8 million metric tons, 12 percent below 1987/88.

Argentine policies such as export taxes and manipulation of the exchange rate have had strong effects on the profitability of Argentine wheat production. The wheat export tax has adversely affected producer returns by lowering farm-gate prices. This tax, however, was eliminated in December 1987 although producers are still required to pay a 1.5 percent tax for agricultural research. The Argentine exchange rate has also undergone a significant change. It was announced this past August that industrial exports were to be priced at the free market exchange rate, while agricultural exports were to continue under the much higher official exchange rate. Argentine producers would therefore be effectively taxed the difference between the higher official exchange rate and the lower market exchange rate.

Argentine wheat area has fluctuated between 4 and 7 million hectares over the past 25 years with the rotation and substitution of corn, sorghum, soybeans sunflowerseed, and beef. Wheat area has declined steadily since 1982 due to low producer returns and weather problems. Argentine wheat plantings in 1987/88 were reduced due to flooding, and interrupted this past July due to a lack of rainfall. Harvested area for 1988/89 is, therefore, estimated to fall just 6 percent from the year before to 4.5 million hectares. Wheat will be planted this coming June and July for the next marketing year. Planting intentions will depend principally on the profitability of wheat relative to other crops and the willingness of producers to double crop soybeans and wheat. Given 2 years of reduced plantings due to weather, a continuation of high world wheat prices, and a smaller gap between the official and free market Argentine exchange rate, producers could expand plantings from current levels.

1989/90 Production Prospects

If the recent upward trend in yields continues, the world should easily harvest a 1989 wheat crop in excess of 500 million tons. How favorable the growing season is will dictate how close the crop comes to the record 530 million harvest of 1986. This estimate takes on greater importance when one recalls that during the 1987/89 - 1988/89 period, world wheat use has exceeded 530 million tons. Consequently, the world drew heavily on stockpiles. For the 1989/90 year, we will not have the large cushion of beginning year stocks to again draw on. So utilization will be more dependent on how much wheat is available from the 1989 crop.

1989/90 Disappearance

If world wheat prices in 1989/90 are below levels witnessed 1988/89 and world wide economic conditions continue to show some improvement, world wheat utilization could total around 530 million tons. High wheat prices relative to corn and other feed ingredients is dampening the feed use of wheat in 1988/89 and this trend is likely to continue in 1989/90. However, since the early 1980's there seems to be an underlying 2 to 3 percent annual increase in world wheat utilization as a food grain. The major question is will the world produce enough wheat in 1989 to cover this level of utilization. Given the uncertainty of the outlook, wheat analysts around the world are likely to more than ever follow the progress of the 1989 world wheat crops. Crop prospects will take on an added importance this next year because it is unlikely that many countries would be able or willing to draw significantly on stocks to help cover any significant surge in world wheat important demand in 1989/90.

1989/90 Global Trade

What about world wheat trade in 1989/90. World wheat production is likely to increase but may fall short of the projected utilization. This sets the stage for another strong year for world wheat trade. World wheat trade is likely to exceed the 1988/89 level of 93 million tons. Three years of low world wheat prices have spurred wheat consumption worldwide. In recent years, countries appeared willing to increase their dependency on imports to support this increase in wheat consumption. With prices likely to stay high in 1989/90, there is a risk that some countries will reassess their growing dependency on imports to cover expanding consumption. It is likely that a series of signals from the major exporting countries in the form of less restrictive acreage programs and higher guarantees to producers will result in increased production and will be viewed as a positive sign and that the world's importing countries will not significantly alter import plans.

1988/89 U.S. RICE OUTLOOK

The level of rice marketings in 1988/89 largely will be determined by the price expectations of producers, millers, and exporters and the realization of those expectations during the marketing year.

During the first 18 months of the rice marketing loan program (April 1986 - Sept. 1987), rice marketings increased substantially as we became more competitive in the world market. During this period, U.S. domestic and world prices narrowed and our exports rose. Large government-owned inventories were readily available to the market at the world price.

The situation changed during 1987/88 when U.S. supplies tightened and Asian crop prospects deteriorated. Expectations of millers and producers alike were that U.S. rice would command increasing prices. When U.S. rice began to sell well above the USDA announced world price level, exports declined and privately held stock levels expanded. The 1988/89 marketing year has started

with many exporters concerned that producer price expectations may cause a repeat of last year's reduced export performance.

The 1988 crop, at 158.4 million cwt., is up 24 percent from last year and will be the largest since the 1981 crop. But this year's total rice supply has increased only slightly because carryin stocks are off sharply from a year ago. Total supply, at 193.1 million cwt., is up only 6 percent over last year. Although supply increases suggest lower prices, this affect may be offset by the fact that virtually all of this year's supply is privately held. This will improve growers' price leverage compared with prior years. Last year, for example, began with the Commodity Credit Corporation (CCC) owning nearly 9 million cwt. which it sold at its world market value.

The increase in this year's crop resulted mostly from higher plantings due to expectations of higher prices at planting time and from the change in the acreage reduction requirement. Producers were allowed to plant 75 percent of their rice base for 1988, up 10 percent from the prior 2 years. But also some producers, who in prior years had further reduced plantings under the 50/92 program, instead planted more of their permitted acreage. These growers enrolled in the 1988 program and were making planting decisions at a time when farm-gate prices were averaging \$8.00 to \$9.00 per cwt., the highest prices since January 1984. Long grain domestic cash prices during early 1988 were especially high, and as it happened, the greatest declines in 50/92 enrollment, and the largest production increases, occurred in long grain producing areas. As a result, long grain production accounts for 90 percent of the production increase over last year. Overall, 74 percent of the 1988 crop will be long grain rice, up about 4 points from last year.

With total domestic and export usage expected to nearly match the increase in supply this year, projected ending stocks of 33.8 million cwt. are only slightly above the carryin level of 31.4 million. The forecast ending stocks-to-use ratio is essentially unchanged from a year ago.

USDA projections of domestic and export use are based in part on the assumption that domestic farm prices, for the year, will average about \$1.00 per cwt. above the USDA announced world price levels. This domestic market premium has been higher already this year for some cash sales. The dilemma faced by rice marketers is that while these premium levels are acceptable for some domestic and export sales, the same premium makes U.S. rice uncompetitive in most export markets. About 40 percent of U.S. export sales occur under PL-480 financing, GSM credit guarantees, or EEP bonuses, and for these markets some domestic premium can be paid. It is the other 60 percent of the export projection which is at risk if the domestic premium remains too great.

Two price determining rice marketing scenarios are possible in 1988/89. One scenario is that producers will be able to achieve nearly the same level of premium over world price as they did in 1987/88 because total U.S. supplies are only slightly higher than a year ago and world demand is forecast to increase due to an anticipated reduced world price level. Under these circumstances, domestic prices could average as much as \$1.00 per cwt. above the world price level. An alternate price scenario is that world rice prices

may fall to the low levels of early 1987 as a result of the rebound in world production and that, at this reduced price level, only a lower premium would be sustainable. Also, if producers were to deliver their rice to the CCC rather than sell it at close to its world price level, the rice would be marketed by CCC at its world market price, thereby reducing grower leverage to obtain an elevated premium.

For the first few months of this year, it appears that the domestic premium is averaging about 75 cents. However, with Thailand about to harvest a forecast record crop, competitor prices are expected to weaken in late 1988 and early 1989. Will lower world prices necessarily reduce the domestic market premium? If producers elect to try to achieve the premiums received this past market year in pricing their 1988-crop rice, then anticipated exports may not be realized in 1988/89. Producer reluctance to market the crop at close to the world price could result in lower exports.

WORLD RICE SITUATION

Despite prospects for near-record global rice production, rice supplies could again be tight in 1989, since an expected resurgence in import demand and global utilization is likely to preclude any significant rebuilding of stocks.

Global rice production is forecast at 471 million tons (rough basis) for 1988/89. Roughly 40 percent of the 18 million ton increase in production is expected to take place in four major exporting countries (Thailand, Burma, Pakistan, and the U.S.). Global exportable supplies are therefore expected to expand. In spite of higher production in those four countries, only Thailand and Burma are expected to have a significant increase in ending stocks in 1988/89. However, even at the higher stock level, stocks in Thailand will still fall well below levels of previous years.

World rice trade is estimated at 12.4 million tons in 1989--a 1.2 million ton trade increase over 1988--bringing global trade close to the volumes of 1986 and 1987. Thailand and the U.S., are both forecast to have large crops in 1988/89, and are expected to have strong export programs in the upcoming year. Also, Burma, China, and Pakistan are expected to export more rice in 1989.

On the import side, Indonesia and India both striving for self-sufficiency in rice, are expected to be significant importers in the upcoming year. Indonesia has not imported a substantial quantity of rice since 1984. However, depleted stocks are expected to necessitate imports of 500,000 - 600,000 tons in 1989. India, which suffered a very poor 1987 rice crop, has already begun importing rice this year, and will likely continue imports into 1989.

Global rice utilization is forecast to expand by roughly 6 million tons in 1988/89. Global utilization dropped 2 percent in 1987/8, the first year-to-year decline since 1972/73. Last year's decline resulted from foreign exchange difficulties, high global prices, and tight supplies and some substitution of less expensive alternate foods. The current scenario reflects the potential for a possible reversal of that substitution situation. The

strengthening of grain prices over the last couple months has further narrowed the gap between rice prices and those of other grains. Additionally, projections for strong global demand and reduced U.S. stocks in 1988/89 indicate that upward pressure on grain export prices may continue which could make rice a more attractive alternative.

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WORLD WHEAT OUTLOOK: POLICY IMPLICATIONS

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The recovery in U.S. wheat exports, world market share, and prices over the past two years has been encouraging for U.S. farmers and agriculture. Rather than accumulating in Government owned or Government assisted storage, wheat has flowed to the market place and to consumptive use. Disappearance of U.S. wheat hit record levels in 1987/88, up 37 percent in a two year span, and should approach last year's level again in 1988/89. This is despite sharp increases in price. The response of wheat demand to a more market-oriented agricultural policy and an improved global economic environment should provide some comfort to those who fought for and helped administer the 1985 Food and Security Act and are currently carrying the banner for reduction of trade barriers and reduction of subsidies in the GATT.

U.S. WHEAT OUTLOOK

We would like to compliment the fine grain analysis routinely done by Randy and the USDA team. We have no major disagreement with their analysis of the 1988/89 or 1989/90 outlook. Our own projections for this cropyear show a modestly higher level of wheat exports, but these are dependent on reaching a satisfactory new long-term grain agreement with the Soviet Union and liberal use of the Export Enhancement Program for the balance of this cropyear. It is also somewhat dependent on the USDA's ability to make wheat farmer owned reserve stocks available to the market. The market appears to need more than 100 million of the 385 million bushels now in the FOR by the end of this cropyear; it is uncertain how much wheat can come out of reserve without triggering the reserve release level.

Next year's usage will be determined by U.S. wheat production. Wheat harvested acreage will be hard pressed to surpass 66 million acres, unless the USDA lowers the wheat ARP further. Normal yields are still achievable, but perhaps unlikely, given lack of subsoil moisture. Thus, average weather would produce a crop slightly below 2.5 billion bushels. Given the precariously low level of world wheat stocks already alluded to, potential demand

for wheat exports appears strong, which may further reduce U.S. wheat stocks again next year. Farm level wheat prices appear likely to rise again next year, unless there is abnormally good weather in several wheat producing regions in the world. Historically, wheat prices have tended to stay higher longer than feedgrains or oilseeds when drought or demand has pushed prices up.

WORLD WHEAT OUTLOOK

World wheat usage rebounded strongly in 1986 and 1987. Usage in 1988/89 will continue strong, but will be tempered by reduced availability of exportable surpluses in most exporting countries. Stronger demand is due in large part to a dramatic change in world economic and policy developments. The key developments are indicated below.

1. Continued weakness in the exchange rate of the dollar vis-a-vis most other currencies.
2. An extended world economic recovery, which has followed the most prolonged recession since the 1930's.
3. Improved U.S.-Soviet relations.
4. A higher comfort level with the ability to manage the high level of developing country debt that accumulated during the 1970's.
5. Belief that the disinflation that resulted from the highly inflationary late 1970's and early 1980's is at least temporarily over.
6. A U.S. agricultural policy that removed the artificial price support umbrella that impacted producers as well as consumers in foreign countries.

Most analysts appeared to underestimate the impact of these developments on wheat demand. These factors do not fit very well in forecasting models. This can be evidenced by the May 1987 USDA estimates of world usage and U.S. exports that were 5.7 percent and 30 percent, respectively, below the 1987/88 actual levels of use. The USDA was certainly not alone in underestimating usage, but their estimates are most visible. The drought, of course, is impacting 1988/89 usage and trade compared with early estimates; it is interesting to note, however, that current world usage and U.S. export estimates are holding close to early season USDA estimates, despite the sharp run-up in price. Since Government estimates of supply and usage strongly influence set-aside, export, and CCC pricing decisions, it is important that the impact of policy and global economic developments on both supply and demand are examined carefully.

Another noteworthy world wheat development is the sharp rebound in market share the EC is experiencing, reflecting continued high export subsidies. Estimates for 1988/89 EC wheat exports range from 18-20 million tons this year, or a record 19-21 percent of the world wheat market (See table below). Most recent data, (November 8) show EC direct export subsidies for wheat were \$74/metric tonne, or over \$2.00 per bushel, despite the relatively high level of world wheat prices. Wheat acres harvested in the EC were down less than 5 percent from the 1984/85 peak, compared with a 34 percent reduction in the U.S. There has been a growing discussion in the U.S. about phasing out the Export Enhancement Program due to tightening stocks, the political nature of EEP allocations, and the market impact of Government awards. Despite all the warts of the program, however, we do not see any wisdom in the U.S. unilaterally disarming further and conceding record market share to the EC as long as they refuse to reduce acreage appreciably and subsidize exports over two dollars a bushel to buy market share. The most appropriate approach would appear to be to produce, export, and keep striving for a negotiated solution.

World Wheat Trade
U.S. and EC Shares
(Million Tonnes)

	World Trade	U.S.		EC	
		<u>Exports</u>	<u>%</u>	<u>Exports</u>	<u>%</u>
1980/81	94.1	41.2	43.8	15.7	16.7
1981/82	101.3	48.2	47.6	15.7	15.5
1982/83	98.7	41.1	41.6	16.3	16.5
1983/84	102.0	38.9	38.1	15.5	15.2
1984/85	107.0	38.8	36.3	18.5	17.3
1985/86	85.0	24.9	29.3	15.6	18.4
1986/87	90.7	27.3	30.1	16.4	18.0
1987/88	104.7	43.3	41.4	14.5	13.5
1988/89	94.0	39.5	42.0	18-20	19-21

However, despite continued strong exports from the EC, world demand for U.S. wheat ought to remain strong next year. World wheat acreage expansion may remain modest in spite of higher prices and lower stocks. When discounted to reflect local currency values, wheat prices are much stronger in the U.S. than in most other countries. Note in the table below that Jun-Sep wheat prices in dollars are up much more sharply than in other countries. Also, note that only in the U.S. are prices above the level four years ago, when world acreage was declining; wheat is still downright cheap when denominated in yen or won. Beef prices are trending higher (indication of demand for grassland) as are prices of oilseeds and other competing crops. Therefore, wheat supplies may remain restrained and demand relatively strong.

Wheat Price (Jun-Sep '88) vs. Prior Years
In Local Currencies¹

	<u>Australia</u>	<u>Canada</u>	<u>Japan</u>	<u>Korea</u>	<u>U.S.</u>
1988 vs. 1984/85	92.3%	94.0%	51.0%	85.0%	102.5%
1988 vs. 1987/88	108.5	123.2	118.6	114.8	128.2

1. Index of U.S. KC Gulf HRW corrected to foreign currency value.

IMPLICATIONS

The strength of world wheat demand in conjunction with the tightest world stocks since the 1950's implies good demand for U.S. wheat next year. Unless weather is better than average, supplies relative to use are likely to remain very tight in the U.S. The longer term 3-5 year outlook may remain favorable so long as global economics is favorable and the policy environment does not become more protectionist than it already is. This outlook would warrant the following short-term and long-term policy direction.

1. Lower the 1989/90 wheat ARP another 5 percent, from 10 percent to 5 percent. Milling wheat around the world is in very short supply, and we are reliant on good weather next year for adequate supplies. The risk appears to be on the side of shortage next year rather than overproduction.
2. Maintain an aggressive EEP posture. The U.S. has fought hard to regain market share and obtain a leadership role in GATT. The interests of U.S. agriculture would appear to be best served if the Administration has all the leverage possible at its disposal when negotiating in the GATT. Most are eagerly anticipating the day when the U.S. can discontinue EEP and the EC phases down export subsidies and price supports.
3. Introduce more flexibility in commodity base requirements to allow producers to plant the crops most in demand and not have to plant those not in demand. Work cooperatively with other exporters to find a way to support farm income that is acceptable to producers and yet does not lead to overproduction caused by artificially high price supports.
4. Encourage the Administration and Congress to find ways to eliminate the budget deficit. There is already evidence that inflationary pressures are starting to rebuild and

interest rates trending higher. The surest way to damage agriculture is to ignite another inflationary spiral for which there is a major deflationary correction.

SUMMARY

It appears that the wheat market is in a cyclically stronger period as world surpluses have been reduced and the demand environment is improved. This should provide U.S. producers an opportunity to put productive acres back to work and expect a reasonable return. The longer term outlook is dependent on GATT negotiations to reduce export subsidies and import barriers and on the U.S. Government to significantly reduce the budget deficit.

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RICE AND COMMODITY TRADING

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The topic of my talk today is rice and commodity trading. In particular, I would like to highlight some forces that are changing the industry here and abroad. Until recently, rice has remained isolated in various ways from the discipline of market forces. In Asia, where most of the world's supply is produced and consumed, rice takes on political and even religious importance.

Even in the U.S., where it is grown as a cash crop, rice historically has been heavily protected by farm programs and marketed quite differently than other grains and oilseeds. All that is changing rapidly.

I am not here today to elaborate on rice's unique properties. Rather I want to discuss briefly some of the forces now at work which are towing rice into the mainstream of world grain trade. Whatever it has been, rice is gradually becoming a commodity. For an industry that has done things in a unique way for decades, this is a big change. Let me now tell you where I see this change occurring and what forces will continue to create more change.

Since April 15, 1986, the U.S. and world rice industry have endured a lot of change and a good deal of price volatility. On that historic day, the rice price was cut in half due to the new U.S. rice program - probably the best advertised if not greatest one day price decline ever.

Two forces are causing change within the U.S. The first is the new rice marketing loan which removed the loan support under the market and the second is the development of rough rice futures at the Chicago Board of Trade. Both have been catalysts for change in our little industry. Our price is now affected by changes in the Bangkok price through the world market price mechanism. Rough rice, both futures and cash, have become a means for exporters to take forward positions for export. In the past millers milled the rice and exporters bought milled rice. The trades were very specific and market participants played distinct roles. Traditionally, rice has been traded more like a vegetable than a grain, going straight from farm to dinner plate with little processing and even less marketing.

Except that rice is so important to so many in Asia and except that rice is a dynamic, new food market in the U.S., all that I am telling you might seem insignificant. Aside from

debates on farm programs, rice has been easily overlooked when grains are considered. I would suspect until today few of you knew that rice trades on the floor of the largest grain exchange in the world. Last year, for example, at this conference no presentation was made on rice. Certainly, our lobbyist and association President, Steve Gabbert, is an able speaker and not shy about telling our story to friend or foe.

The U.S. produces a small amount of rice, less than the statistical error in China's production. Yet U.S. rice swings a big stick in world trade and for a time in the early 1980's the U.S. was the number one exporter.

On our retail shelves and in our restaurants, the role of rice is also changing. Rice is becoming more of an ingredient not just starch in a plastic bag. Food companies are finding new ways to attract the buyer's dollar. In some supermarkets, the rice cake shelf has nearly as much linear feet as rice itself. And then there is the expansion of the prepared rice category, the introduction of new ways to cook rice quickly and boil-in-a-bag rices. In the last 24 months our company alone has introduced over 30 new products. The competition we face is invigorating and broadening the appeal of rice. Americans are discovering what Asia has known for centuries, that rice has endless food possibilities.

Let's talk for a minute about our rice farm program - not well reviewed in Asia and panned by many critics in this town as well. Despite all its warts, as an innovative and transitional program it has accelerated needed change. U.S. rice has become competitive with wheat for the first time in many years. Nearby wheat and rice futures are currently trading at parity. It may be more than coincidence that rice futures share its pit with wheat options. Certainly the marketing loan has whetted the rice industry's appetite for price discovery. Market newsletters and pricing services are cropping up everywhere.

A subtle but revolutionary change came about with the new rice program. No longer does the rice market shutdown on April 30, the loan turnover deadline under previous programs. Rice can trade year around. This is a great benefit to merchandisers who would be willing to assume risk on inventories. Since 1986, exporters and warehouseman have been tiptoeing their way into rice merchandising.

Futures, of course, are essential to a healthy merchandising sector. There is even the early signs of a basis market developing and an improved or at least more rational spread market between delivery months. Unfortunately, despite all this progress the CFTC still refuses to approve a July option, the lynch pin to year-around trading. This severely limits the potential opportunities of the new rice program. The Board of Trade has done a splendid job of conforming rough rice to the delivery standards of its other grains. The lack of standardization as well as the absence of price discovery have been impediments to rice trading.

Will rice futures succeed? Back when heating oil futures were just taking root, proponents of the contract were convinced that they would succeed when the Houston cash oil market waited for the futures to open in New York. Now cash and energy futures work together to add flexibility to trading activities.

Houston may not rely on Chicago futures to make deals. But Houston, a major rice trading center, is beginning to watch the rough futures in making trading decisions. A

year ago this was not the case. We can't hedge a cargo on the exchange but the cash rough market has been pretty skinny as well this fall. Certainly, a good deal more rough rice has traded in Chicago than in Texas over the last two months. Liquidity, I believe, is in the eye of the beholder.

Outside the U.S., changes also are a foot. Thailand and Mainland China - two of the world's largest rice trading nations, produced some unexpected developments in their rice pricing policy this year. These changes point to more reliance on world prices in decision making.

In Thailand for the first time since World War II, the government refrained from taxing exports despite record high rough prices on the farm. This action or rather inaction reflects:

1. A commitment to free trade.
2. A determination to let the farmer and the rural rice industry retain and manage profits.
3. A good deal of luck - the best spring rains in 35 years came on the heels of the worst monsoon failure in many years. The big consumer complaint this year in Bangkok has been the price of automobiles rather than rice. This is a sign of changing times and growing affluence there.

In China this year in the province of Canton, the government allowed the price of rice to double. The rice price had been stable for many years. This was a brave move considering the special role rice has played in the diet of South China where cheap rice was almost a basic right. Much to my surprise, this year's jump in the rice price has made little stir among consumers. Rising incomes in the South appear to have cushioned the blow.

In a report, which was quoted recently in The China Letter, the Chinese Agricultural Minister, made some candid comments on grain. These remarks underscore one of Asia's main problems with rice and a cause of the stagnation of rice production in China in particular. He notes, "The following fact is a common occurrence in our daily life. On the one hand, grain is in short supply due to lack of initiative on the part of peasants. On the other, a lot of grain and other kinds of food go to waste in restaurants, guest houses and the canteens of some organizations and schools. The reason is that grain, of which the price is greatly suppressed, is not treated as a genuine commodity in the market, and peasants fail to get average social profit due to unequivalent exchange while consumers do not pay in accordance with the production cost of grain." (Source: The China Letter, Special Report, Supplement to Issue No. 202, P.O. Box 54149, Los Angeles, California 90054).

China is concerned not only with the pricing of rice but also the delivery of better quality rice. China is the world's largest producer and the origin of many of the world's rice varieties. Through an effective exchange program Chinese breeders are trying to work U.S. characteristics into their rices and are intent on improving quality for domestic demand.

Chinese breeders are far ahead of other countries in mastering the rice plant and may have much to offer the world as it comes to terms with a leveling off of rice yields.

As for the rest of Asia, I see few if any changes in the near term. Rice's role in peoples diet is declining, however, with the advent of fast foods. Gastronomically the West and the East are like ships passing in the night. As Asia turns to buns and pizza, Westerners are discovering rice in all its forms. Perhaps in time rice will resurface inside Asian hamburgers.

In Asia diet changes may lead to modification of rice policy. As wheat and other foods gain market share and as incomes rise, perhaps rice will become less significant politically. What is clear, however, is that rice remains the most protected and policy driven of all foods. Those who would have rice trade as a commodity and seek its own price level are in a minority. Japan and Indonesia in particular are struggling with rice policies that are out of step with the opportunities in the world market.

Rice in the next few years will be heavily influenced by the 1991 farm bill and any policy shift in Asia. Just a small loosening of trade barriers could have a huge effect on world trade. In particular the 1987-88 season taught us a lesson in the U.S. Despite a major monsoon failure and drought in the mid-west, Asian milled rice prices for export increased but did not explode. U.S. rice prices, however, jumped way out of line with Asia but we paid dearly for this price spread with lost and postponed export business.

As long as countries in responsible export position such as the U.S., Thailand and China allow the farmer to profit from price change, more confidence may develop in the rice trade, which is still viewed as a thin, unreliable market. Although the cure for higher prices is in fact higher prices, this market rule is unpopular politically. Despite the drought, Thailand may post record exports in 1988 and will come into 1989 with the largest crop on record, a small example of free market consequences. I am told there are several countries in need of its surplus. This year the seller is freer to meet the needs of buyers, which is the goal of an open, unrestricted market.

More changes lie ahead in 1989 as we begin to hammer out a new farm bill. Some trade offs may even reach GATT negotiations. Hopefully these changes will be less hair raising than the events during the last year, which first tripled U.S. rice prices, then cut them in half and finished off the season with the largest Gulf hurricane on record. If Gilbert had gone up the Mississippi, I might not have had the leisure to reflect on events and address this meeting.

Thank you for the opportunity to put in a few good words for rice this year.

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FEED GRAIN SITUATION AND OUTLOOK

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Although it is old news by now, by far the biggest event affecting the current situation for feed grains is the drought of 1988. Because the 1983/84 crop year was the most recent widespread drought, I will make several comparisons of the current situation with that year. This year's harvest of the four feed grains is 141.7 million metric tons, down 34 percent from last year's production and is the lowest since the drought and PIK reduced crop of 1983. Planted area in 1988 was down around 5 percent from 1987. However, harvested area in 1988 was about 10 percent below 1987, in part because the drought caused an increase in abandoned acreage. Yield was down by 27 percent--1.8 tons per acre compared with almost 2 and a half tons the previous year. Looking at the 1988 feed grain production by crop, barley and oat crops suffered the greatest damage, sorghum the least.

Area harvested to corn was down 4 percent in 1988, and yields were down 31 percent. This led to a 34 percent decline in the corn crop to 4,671 million bushels, the lowest since 1983. The 1988 barley crop, at 283 million bushels is down 47 percent from 1987 and is the smallest since 1953. The 1988 oats crop, estimated at 211 million bushels is 44 percent below 1987 and is the smallest U.S. crop of record (1866 being the first year recorded). The sorghum crop suffered the least from the drought and at 546 million bushels, is down by 26 percent.

Total supplies of feed grains would have declined marginally even without the drought because of a 12-percent decline in carryin stocks. With the decline in production and stocks, total supplies are down by 25 percent from last year.

The drop in feed grain availabilities is expected to lead to a 60 percent decline in carryout stocks, as only a minor drop in use of about 5 percent is forecast. Most of the adjustment in use is expected to come in domestic feed and residual forecast down about 6 percent.

In 1983/84, feed grain supplies were also down about 25 percent from a year earlier, but production was down about 45 percent. Although carryin stocks to 1983/84 were 25 million tons lower than 1988/89, they were record high and nearly 40 percent higher than 1982/83. In that year, total use fell by

6 percent while carryout stocks declined 64 percent to about 40 million tons. 1988/89 carryout is projected over 30 percent larger than that for the 1983/84 year. Thus, the supply/demand balance for the current year is not as tight as that for 1983/84. This is evidenced by the fact that total domestic use fell by about 10 percent in that year, while feed use declined by 14 percent.

CORN

The 1988/89 corn supply of 8.9 billion bushels is down 25 percent from last year, but remains 16 percent above 1983/84.

Total use is expected to decline only marginally from last year, with exports actually expected to increase 2 to 3 percent.

Feed Demand. After two years in a row of record feed and residual disappearance of a little over 4.7 billion bushels, feed use of corn is expected to decline about 5 percent to 4.5 billion bushels, mainly because of higher feed prices.

The grain consuming animal unit (GCAU) is an index of feed demand potential constructed by weighting livestock numbers of various species by average feed consumption per animal. The GCAU total was a little over 76 million units in 1987/88, and is expected to decline only marginally in 1988/89. In fact, GCAU's don't change by more than a few percentage points in any year. Thus, GCAU's by themselves don't provide a very good forecaster of feed and residual disappearance of grains. However, grain prices can go up or down sharply in a given year. A graph of the GCAU's, grain prices, and feed and residual disappearance of the four feed grains, each expressed as an index with 1982/83 at 100, quite clearly shows that as prices rise, feed use falls and vice-versa, while GCAU's march along at a relatively stable level.

The sharp increase in price anticipated and already observed for 1988/89 may indicate a greater decline in feed use than we currently are forecasting. Two factors may tend to mitigate the decline in use, however. First, the emergency feed assistance provided to grower-feeders suffering a substantial feed loss will tend to encourage feeding beyond what otherwise may have occurred. Second, the momentum provided to the livestock producers by very low grain prices in the past two years may carry the sector through a year of high prices without too many casualties.

Food, Seed and Industrial Use. FSI corn use for 1987/88 was 1.23 billion bushels, a 3 percent increase over a year earlier. HFCS production provided most of the growth in FSI use of corn in 1987/88. Corn use for alcohol production and seed use was relatively flat. High corn prices, reduced industry capacity due to some plant closings, and relatively low petroleum prices have contributed to slow growth in ethanol sales. In addition, tax exemptions for ethanol sales have been eliminated in some States.

1988/89 FSI use of corn is forecast down 1 percent from 1987/88 to 1,215 million bushels. Although sweetener production will likely continue to increase moderately, continued high corn prices and low petroleum prices are projected to cut into demand for corn for ethanol production this year.

Exports. Several factors in the foreign feed situation (about which, more to follow) have lead to an expected increase in corn exports despite reduced U.S. supply and higher prices. At nearly 1.8 billion bushels, US corn exports are projected up more than 2 percent. This would make 1988/89 the third consecutive year in which exports have increased, although corn exports remain well below the record 2.42 billion bushels exported in 1979/80.

Carryout. With supplies down sharply and demand only moderately lower, carryout stocks of corn are expected to fall by two-thirds to 1,446 million bushels. This would mean a stocks to use ratio of 19 percent -- not particularly tight by historical standards, although drastically lower than recent years. The ratio was, however, 15 percent in 1983/84.

Prices. The farm price of corn for the 1987/88 season averaged \$1.94 per bushel. This average was higher than any monthly price during the crop year through April. The average price for the month of June jumped 47 cents from May as dry weather fueled concerns over the 1988 crops. The farm price has been at or above \$2.60 per bushel since July, propping up the 1987/88 average as well as the projected 1988/89 price. Thus, the 1988/89 average price is forecast to fall in the range \$2.40 to \$2.80 per bushel.

Increases in other feed grain prices have been roughly on a par with corn. While prices for barley and oats have shown similar increases, drought-induced higher prices this past summer fell mostly in the 1988/89 crop year as their crop year begins in June. Barley farm prices have averaged \$2.78 per bushel since June, about 50 percent higher than last year and oats prices have averaged \$2.62 per bushel, about 86 percent higher than last year. Thus, the season average farm price is projected to be \$2.50 to \$2.90 per bushel for barley and \$2.50 to \$2.85 for oats.

FOREIGN COARSE GRAINS

Global output of coarse grains in 1988/89 is estimated at 710 million metric tons, down 10 percent from a year earlier. However, foreign coarse grain production, forecast at 568 million tons is only down 1 percent.

As the drought that affected the U.S. also hurt crops north of the border, Canadian production is down 25 percent. Canada suffered a 4 million ton drop in barley production and a 2 million ton drop in corn. Coarse grain production in China is also estimated down in 1988 with a 6-percent lower corn crop. The

other major competitors have not suffered major declines in coarse grain production. In fact, the EC has a forecast 8-percent increase in 1988 production.

The story in Argentina is that the increase is currently expected to be small. The high corn prices in the world markets since July would normally be expected to lead to increased plantings in Argentina. It now appears, however, that soybean plantings may have crowded out the potential increase in corn area. In addition, the Argentine winter was exceptionally dry, and depleted subsoil moisture there may make the 1988 crop highly susceptible to further dryness. Thus, while their crop may be up slightly, the outlook is uncertain.

With this for background, why is global coarse grain trade expected to grow 10 percent to 89.2 million tons? There are two major reasons. First, coarse grain production in the USSR is estimated down 14 percent to 98 million tons. Second, high prices and low availability of wheat in the world market is expected to sharply reduce trade in feed quality wheat this year. While USSR coarse grain imports (October-September) are forecast up 5 million tons, wheat imports are forecast down 7.5 million tons. The Soviet situation has added much uncertainty to world grain and oilseed markets this year.

To summarize the October-September world trade situation, global coarse grain trade is forecast up 10 percent. U.S. exports are forecast down 2 percent with declines in sorghum and barley expected to outweigh a small increase in corn exports.

Corn Free Supplies

One of the key questions analysts have focused on for projecting corn prices is whether or not the Farmer Owned Reserve (FOR) will be triggered -- that is, is demand strong enough to force prices up to reserve release level, currently set at the 1988 target price of \$2.93 per bushel.

When prices reach the release level, grain in the FOR may be redeemed by producers for cash without penalty. The grain may be exchanged for generic commodity certificates in any case, but many farmers wish to keep their grain under reserve loan, as they earn storage payments on FOR grain. If the FOR is in release for two consecutive months, farmers will stop earning storage payments and interest will begin to accrue on their loans. The Disaster Assistance Act of 1988 altered the release rules to allow farmers to redeem FOR loans for the rest of the marketing year if release is achieved any time during the marketing year. Thus, farmers will have an important incentive to redeem their FOR loans if release status is achieved.

Is it possible to get through the 1988/89 crop year for corn without triggering the reserve? To analyze the situation, it is necessary to re-work the

supply/demand balance into a free-supply-and-needs balance. Free carryin is what is left of total carryin after subtracting Government-owned, FOR, and 9-month loan quantities out. To derive an initial free supply, add new-crop production and imports. The result was a little under 8.5 billion bushels in 1986/87, near 7 billion bushels in 1987/88, and about 6 billion bushels in 1988/89.

Private individuals and firms were willing to hold nearly 1.4 billion bushels in free carryover into 1988/89 as a result of the anticipated short crop. This greatly exceeds free carryover for recent years. Thus, even with the drought-reduced crop, free supply is not far below that for recent years.

To determine the deficit of grain required from loan and Government-held corn, we subtract quantities of loans placed and market demand. In 1986/87, nearly 5 billion bushels were placed under loan, and in 1987/88, over 4 billion were placed under loan, mostly to take advantage of "PIK and Roll" opportunities. In 1988/89, the tighter supply and higher prices will likely drastically cut into loan placements, as the prices farmers can receive from the market greatly exceed Government price-support loans. About 170 million bushels have been placed under loan to date, well below recent years' pace. Perhaps something less than one-half, to one billion bushels will be placed under loan.

After subtracting demand, the free-supply deficit was about 4 billion bushels in 1986/87, 5 billion in 1987/88, and 2 to 2.5 billion in 1988/89. Freeing up this much grain in 1988/89 should be a "piece of cake".

The encumbered carryin plus new loan placements will likely be near 3.5 to 4 billion bushels in 1988/89. Transfer of encumbered grain to the free market can be accomplished by cash redemption of loans, certificate redemption of loans, cash or barter sales from the CCC, or certificate exchanges from the CCC. For the past two years, certificate redemptions of loans, at 3 to 4 billion bushels, were the major avenue of freeing up grain. In 1988/89, this activity is likely to be greatly reduced.

Already, through October of 1988, about 425 million bushels of old-crop loans have been redeemed, with about 28 million bushels exchanged for certificates, and almost 400 million redeemed for cash. Virtually all new and outstanding 1987 and 1988-crop loans are likely to be redeemed for cash, bringing crop-year total cash redemptions to nearly 1 billion to 1.5 billion bushels. This leaves only about .5 to 1.5 billion bushels required from certificate exchanges for loans and CCC inventory, as well as cash CCC sales.

Thus, it is feasible to reach forecast demand without achieving FOR release prices. The remaining question we face is whether farmers will sell their stocks or will hold them speculating on higher prices. The coming months will tell.

Other analysts may use different forecasts for demand or loan activity, and may expect the market to require greater free stocks at the end of 1988/89. Higher estimates of demand and free stocks carryout would tend to push prices to reserve release levels. However, fairly drastic differences would be required to sustain prices at or above these levels for long unless there is unfavorable weather again next growing season. In any case, the arithmetic is simple once you settle on projected demand and loan activity.

THE NEW CROP YEAR

Acreage of many major U.S. crops is likely to increase in 1989, as acreage idling requirements will decline. The 1989 Feed Grain Program features a 10 percent Acreage Reduction Program (ARP) and no PLD. This compares with a 20 percent ARP and 15 percent PLD in 1988. Although farmer participation in the voluntary program and national crop acreage base adjustments will affect the outcome, the program changes could add 8 to 10 million acres of corn plantings in 1989. This could be lowered 1 to 2 million acres if farmers take advantage of program options that allow oilseed or oats plantings. However, given a return to normal weather, the percentage harvested for grain will rebound from the drought-reduced 1988 level. Thus, area harvested for corn may be 67 to 69 million acres.

Many estimates of 1989 corn yields range from 110 to 115 bushels per acre, although these forecasts may be weighting the 1988 disaster and potential 1989 weather problems a little too heavily. If weather cooperates next year, yields of 120 bushels per acre are not out of the question, considering long term trend increases of more than 2 bushels per year. Thus, the 1989 crop could be between 7.7 and 8.3 billion bushels.

If 1989 production is on the low end, near 7.7 billion bushels, carryout stocks could increase if 1989/90 use stays about equal to 1988/89. Even a 200 million bushel increase in use would leave carryout stocks about the same as carryin. Farm price would fall, but may stay well above 1987/88 corn price. If 1989 production is on the high end of this range, stock building would likely resume and farm prices would fall further toward the loan rate of \$1.65 per bushel.

The barley and oats crops could be up more than 75 percent and roughly double their 1988 levels, respectively, if yields and acreage return to pre-1988 levels. Both of these small grain crops would tend to modestly build stocks if production returns to normal levels, and prices will likely decline.

Grain sorghum production is likely to rebound in 1989/90 if yields return to normal, although use may continue to exceed production, leading to the third consecutive reduction of surplus carryout. Price will likely continue to be pegged to roughly 90 percent of corn prices.

U.S. FEEDGRAIN SUPPLY AND DEMAND

	1986/87	1987/88	1988/89 FORECAST	CHANGE FROM YEAR AGO
		MMT		PERCENT
BEGINNING STOCKS	126.3	152.1	133.6	-12
PRODUCTION	252.3	215.2	141.7	-33
TOTAL SUPPLY	379.4	368.4	276.8	-25
FEED & RES.	145.5	145.6	136.6	-7
FOOD, SEED & IND.	35.5	36.5	36.3	-1
DOMESTIC USE	181.0	182.1	172.9	-5
EXPORTS	46.3	52.6	51.3	-2
TOTAL USE	227.2	234.8	224.2	-5
ENDING STOCKS	152.1	133.6	52.6	-61
STOCKS/USE RATIO	67	57	23	—

U.S. CORN SUPPLY AND DEMAND

	1986/87	1987/88	1988/89 FORECAST	CHANGE FROM YEAR AGO
		MIL. BU.		PERCENT
BEGINNING STOCKS	4,040	4,882	4,260	-13
PRODUCTION	8,250	7,064	4,671	-34
TOTAL SUPPLY	12,291	11,950	8,936	-25
FEED & RES.	4,714	4,730	4,500	-5
FOOD, SEED & IND.	1,192	1,229	1,215	-1
DOMESTIC USE	5,906	5,959	5,715	-4
EXPORTS	1,504	1,732	1,775	+2
TOTAL USE	7,410	7,690	7,490	-3
ENDING STOCKS	4,882	4,260	1,446	-66
STOCKS/USE RATIO	66	55	19	—
		\$ PER BU.		
AVG. MARKET PRICE	1.50	1.94	2.40-2.80	23-44
LOAN RATE	1.92	1.82	1.77	-3

CORN

	1987	1988	% chg
Acres Harvested*	59.2	56.7	-4
Yield	119.4	82.3	-31
Production*	7064.1	4671.2	-34

SORGHUM

	1987	1988	% chg
Acres Harvested*	10.6	9.0	-15
Yield	69.9	60.6	-13
Production*	740.9	546.3	-26

BARLEY

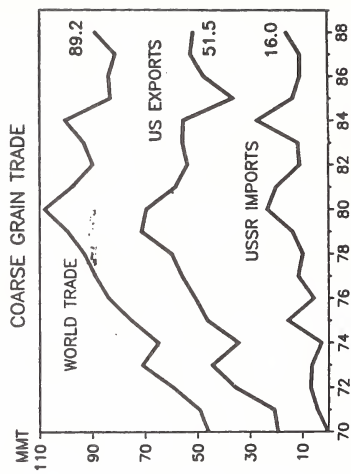
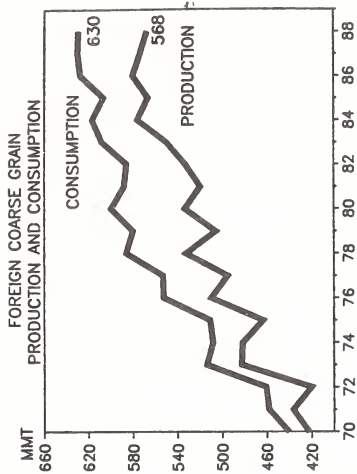
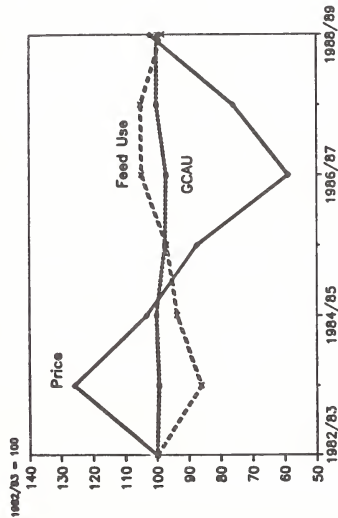
	1987	1988	% chg
Acres Harvested*	10.1	7.4	-26
Yield	52.7	38.2	-28
Production*	529.5	282.6	-47

OATS

	1987	1988	% chg
Acres Harvested*	6.9	5.4	-22
Yield	54.0	39.1	-28
Production*	374.0	210.8	-44

* millions

Animal Units, Feed Use and Prices



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A VIEW OF THE FEEDGRAIN OUTLOOK FOR 1989

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The Quaker Oats Company

I appreciate the opportunity to discuss the outlook for feedgrains. Today some limited remarks will be addressed to the 1988/89 feedgrain outlook and prospects for 1989/90. Most of my remarks will be focus on oats, and to a lesser extent on white corn since those two feedgrains were not discussed by USDA. I also will briefly discuss the upcoming 1990 Farm Bill debate that is so important for the commodity sector.

1988/89 SITUATION AND OUTLOOK

Throughout much of the 1988 growing season, our estimates of production were considerably lower than official USDA estimates. Even though we are using their latest assessment in our supply/demand balances, we still believe there could be some fairly significant weather related downside adjustments occur in the final estimates for 1988 corn production. We will keep close track of the quarterly stocks estimates to determine if significant adjustments in 1988 production will occur in the final crop estimate that will be released in January 1990.

We basically agree with USDA production estimates for oats and barley. Again the quarterly stocks estimates for barley, corn, and sorghum will help in the evaluation of the accuracy of the final production estimates. This will not be true for oats in that USDA no longer collects and publishes quarterly estimates of stocks for oats. Unfortunately, this lack of interest and effort on the part of USDA is typical of the Government's attention to oats. Oats is still a small crop relative to corn, soybeans, and wheat in terms of value. However, it is still a very important crop, not just to oats processors but also to oats producers nationwide and it's importance is going to grow.

In a review of the oats supply/demand balance sheet we believe imports into the United States would approach 100 million bushels during 1988/89 if world-wide availabilities were sufficient.

Shortfalls in Argentina due to weather related problems early in the season and below normal production in Canada and Scandinavia limit amounts available for export.

Our estimate of U.S. food use of oats totals 76 million bushels, well above the implied USDA estimate of about 53 million bushels. Food use of oats has been rising rapidly as consumers have become aware of the nutritional benefits of oats products, particularly oats bran and oatmeal, in contributing to the reduction of serum cholesterol when part of a low fat diet.

Another commodity area that I would also reference for 1988/89 is white corn. White corn is very much of a specialty crop, primarily used for food, with total production in 1988 of about 25 million bushels, less than 0.5% of total corn production. This is a reduction of 33% from estimated production in 1987 and reflects the impact of the drought on yields since area planted was about 415 thousand acres, virtually unchanged from the previous year. The shortfall in 1988 production has resulted in prices in the \$4.50-5.00 per bushel range, almost double the current prices for yellow corn. We anticipate further price gains for white corn during the remainder of the crop year. This crop appears to offer producers significant income potential in 1989, especially for those in areas where white corn is normally processed. The export market is at times also fairly active for white corn. Major markets for white corn are Mexico and Japan with a number of additional countries making purchases on an irregular basis. USDA no longer collects production data on white corn and they have never collected information on stocks.

The key element to be gleaned from the current USDA assessment of feed grain supply/demand balances is that the large surpluses that characterized U.S. supplies during the past two years will have been depleted during the 1988/89 crop year. This makes the U.S. very vulnerable if a shortfall were to occur in production during the 1989 crop year. We have never experienced back to back production declines in U.S. corn production due to reduced yields, however, that doesn't mean it can't occur. It is for this reason that many of us in the industry were pushing for lower acreage reduction programs (ARP) than the 10% ARP announced for 1989 for corn, sorghum, and barley and the 5% for oats.

The 50% reduction in the ARP requirements for corn, sorghum, and barley while the oats ARP was held unchanged at 5%, will further disadvantage oats next year even though a tighter oat supply/demand balance was already expected.

1989/90 PROSPECTS

As a result of the reduction in ARP requirements for 1989 and our assumptions on program participation we expect about 34 million additional acres would be available for total crop production in

1989 compared to a year earlier. Our current assumption is that the Conservation Reserve Program (CRP) will remove about 4 million of those acres, allowing a net increase of 30 million in harvest acres.

The real question is the future of the CRP and whether USDA will achieve the 40 million acre minimum legislated by the 1985 Food Security Act. In our opinion, the CRP has been one of the major factors in the reduction of acreage devoted to oats. The fact that producer returns for oats have been lower than for other grains due to the levels at which USDA established target prices has resulted in more oats cropland being entered into the CRP. All Americans are interested in conserving the nation's farm land, but removing oats land, one of the more effective soil conserving crops, doesn't really achieve the CRP's objective of removing highly erodible row crop acreage such as corn and sorghum from production. It is interesting to note that many producers in the CRP plant oats on that acreage as a soil conserving crop.

Many in the agricultural community are realizing that this nation cannot afford to remove the acreage from production called for in the current CRP program. As a result of this program and the ARP's implemented in our Wheat and Feed Grain Programs over the past few years, we have encouraged foreign nations to expand production at US producer expense. This is definitely evident by the levels of oats imported into the United States as well as the significant expansion in soybean production in South America.

Feed grain acreage in 1989 is expected to sharply increase in 1989 with corn up 10 million acres to 77.5 million. Sorghum acreage is placed at about 13 million, barley at 12 and oats at slightly under 12 million acres. This oats level represents a decrease of 2 million acres from last year with oats the only feedgrain showing a decrease in planted acreage. The decrease in oats relates to reduced ARP requirements for the other grains, thus diminishing the need for a conservative crop to be planted on that acreage.

Harvest acreage for the feed grains should increase commensurate with the expansion in planted acreage with the exceptions of oats where harvest acreage is placed slightly over 7 million acres, up 1.7 million acres from 1988. This expansion in oats reflects our assumption that weather patterns will return to normal and that a higher proportion of oats planted will be destined for harvest for grain.

Although we assume weather patterns will return to normal, we remain very concerned about subsoil moisture which could affect 1989 yield potential. Many areas, especially the North Central States and in the wheat areas of the Great Plains, have not had a

recharging of subsoil moisture to date. At this point it is unlikely that this situation will be corrected by spring planting time next year. Thus the potential for trend yields to us is quite low. In addition, markets in general will be very susceptible to the first sign of stress during the 1989 growing season.

Initial estimates of corn supplies for the 1989/90 crop year are quite comparable with those for the current crop year. Expansion in domestic requirements, assuming little change in exports, suggest further reductions in stocks are likely.

Export demand for corn should continue strong fueled in part by restricted wheat supplies available for feeding purposes.

Oats and barley supplies, however, should improve as yields return to more normal levels, even though still below the long term trend. Both of these crops were severely affected by the drought of 1988.

There have been a few concerns voiced about seed corn quality and seed availability for the larger acreages in 1989. We assume there was sufficient carryover and/or that seed corn producers through offseason production in the Southern U.S., Argentina, and Hawaii will have sufficient quality hybrids available. Seed corn, however, is likely to be more expensive than in 1988.

At this point in time feed grain stocks are not expected to expand in 1989/90 and could be down from this year's levels, primarily due to the reduction expected in corn stocks.

1990 FARM LEGISLATION

The debate on the 1990 Farm Bill has already begun. Although we are not quite sure when the legislation will be enacted, some are suggesting next year because of budget pressures, others are suggesting 1991 because of election pressures. We are starting to see its broad outline. There is already recognition as a result of potential soybean shortages and the growing oats imports that a major realignment of program benefits, and specifically target prices should be undertaken.

There is also definite recognition that producers need to be able to respond to market signals rather than being forced to continue to produce crops that may already be in surplus in order to assure future income benefits. As an example, oats prices, even though well above historic levels and frequently at prices more than double that of corn on a hundredweight basis cannot compete with returns from farm programs for corn or barley. Target prices adjustments need to occur to allow greater market efficiencies.

Oats prices for the past two years have averaged at levels high even to force virtually all oats from livestock and poultry feeding rations. Although USDA no longer collects statistics on the amount of grain sold from farms, we estimate about 60% of the oats produced in this country are sold off farm. Our estimates further indicate the food industry uses roughly 75 million bushels of the oats sold off farms with the race horse trade using about the same amount. This latter group, in many instances, pays even higher premiums for oats than does the milling industry. Given the current and expected usage of off-farm oats an argument can be made that oats should no longer be considered a feed grain, but rather a food grain with target prices set accordingly.

Whatever changes are made in the farm program, they will have a very definite impact on the feed grains sector. Given the unknowns of the legislative changes, plus the potential for significant shocks to the system as a result of large stocks drawdown, potential weather related problems etc., forecasting 1989 and 1990 is obviously difficult. But whatever occurs, the next two years promise to be an interesting time.

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EXPORT MARKETING ISSUES

Darwin E. Stolte
President, U.S. Feed Grains Council

I would like to focus my remarks this morning on the export side of the marketing equation. 1988 has been a good year for feed grains exports. It has been a year of increased exports, continuing the climb of exports from the lows of 1985. In addition we have been able to meet all domestic and export demands despite the drought.

We are here to look at 1989 and beyond. Where are feed grains exports going and what are the major influences on exports?

To look at future exports we need to focus on policy issues or "marketing issues," if you will, that affect our ability to maintain our existing overseas markets and allow us to expand our global marketing opportunities.

The first "marketing issue" is that of price competitiveness. Over the past eight years the need to be price competitive has been clearly demonstrated. Under the 1981 farm program U.S. agricultural exports fell from \$43.8 billion to \$26.3 billion between 1981/82 and 1985/86. The U.S. agricultural trade surplus fell from \$26.6 billion to \$5.4 billion. U.S. feed grains exports dropped from nearly 60 million metric tons in 1981/82 to just over 36 million metric tons in 85/86.

Under the '81 program we had policies that stimulated imports and decreased exports. We became a supplier of last resort rather than the supplier of choice.

The Food Security Act of 1985 put us back on the right track for exports. It gave the Secretary of Agriculture authority to drop the loan rate. The result was a lower global market price, down nearly 25 percent. U.S. feed grains exports today are nearly 50 percent greater than 1985/86, an increase of 18 million metric tons. The net agricultural trade surplus has almost tripled to \$14.6 billion. Total agricultural export tonnage was up 38 million metric tons in two years.

The price competitiveness we enjoy today is a result of the fundamentals of the 1985 farm bill. As we approach the policy debates on the 1990 farm legislation the point remains -- don't change the fundamentals of the Food Security Act of 1985.

The second "marketing issue" we face is trade liberalization. We are approaching the GATT Mid-Term review. Agriculture remains on the priority list at the negotiations. And for good reason. The world ag trading environment is a mess. It is essential that the United States stay the course for "freeze and phase-out" of agricultural subsidies - in particular the market distorting, disruptive export subsidies.

The primary obstacle to change, particularly in the GATT negotiations, is the European Community. The EC was a feed grains importer 15 years ago, importing nearly 20 million metric tons each year. This year the EC will probably subsidize the export of over 30 million metric tons of grains. Those subsidies are responsible for much of the world feed grain export problems.

The challenge to the new administration is to stay tough and persistent. Do not make the mistake of trading off agriculture for other sector benefits as has happened in previous rounds. Substantive trade liberalization can only be achieved through multilateral negotiations and agreements.

I have labeled bilateral negotiations as the third "marketing issue" we face in feed grains exports. The primary successes in bilateral negotiations have been in the beef/citrus arena. I am concerned, however, over the focus of our priorities in initiating bilateral negotiations. These agreements often result in short-term gains for some commodities. Those short-term gains displace possible long-term gains for primary export options. Bilateral agreements frequently benefit others more than the United States. Australian beef was a winner with the U.S./Japan beef-citrus agreement.

Perhaps more damaging is the fact that the United States has made enemies in the process of bilateral negotiations and has built up global antagonism.

I am concerned about the value-added tilt of U.S. exports, so I have that listed as the fourth "marketing issue." This move to push increased exports of value-added products has some questionable benefits. Obviously commodity interests differ on the products that should enter the global marketplace. But the move toward value-added products appears to be tied to the protectionist mode of the 1980s.

I question the ability of the United States to be competitive over time because of our high labor costs and relatively higher processing costs. Value-added exports do not take into account changes in the food processing industry. It also fails to recognize the customer's desires to utilize its own labor force and other resources.

In addition, the move toward value-added exports does not recognize the United States' great comparative advantage in commodity production. We have the most productive commodity sector in the world and we have an established infrastructure to handle that great volume -- in bulk handling and in our marketing system.

Respect for the U.S. market system is another of my marketing concerns.

The 1985 farm bill has its flaws on the international marketing side. Over the past three years much of the export decision-making responsibility in the international arena has been taken out of the hands of the private marketing system and put into government hands. The Export Enhancement Program and commodity certificates have led U.S. grain exports to be operated in a manner much like a national grain marketing board, with USDA dictating customers, commodities and price. We end up frequently giving mixed signals to customers as well as to market development groups.

This has serious implications for the future of the private sector marketing system. We have a system that is the envy of the world. It has been the key to our ability to turn producer productivity into market growth and profitability. Now is not the time to turn away from that private system.

The Export Enhancement Program has also become a marketing issue. Yes, it has increased some exports. However, it has not proven effective for its original purpose, that of bringing competitors to the negotiating table. We have been buying, not building market share. EEP has created a false market on which producers base their production decisions.

EEP has increased the sensitivities of our good customers, as seen with the U.S./Soviet LTA negotiations. It also has a high price tag. We must ask if the costs can be justified since we have not achieved the original program goal.

Our outlook on "marketing issues" would not be complete without mention of the U.S./USSR long term agreement signed this week. It is a simple extension of the 1983 agreement for 27 months. This new agreement will "buy time."

This latest round of negotiations should be a signal that the United States must be prepared to recognize and respect the Soviet Union as a valued customer beyond 1990. We must respect Soviet access to the U.S. market on equal footing with other trading partners. We also must recognize that the customer has the right to determine the commodities of choice. Market access, export credits and port accessibility are crucial issues of U.S. export growth to an economy that currently imports up to 50 million metric tons of grain per year.

These "marketing issues" can be resolved to the benefit of U.S. producers and the export community. With their resolve, we believe there is the potential to increase feed grains exports.

The U.S. Feed Grains Council has developed, in conjunction with the Wharton Economic Forecasting Associates, a global feed grains demand model. Our model projects U.S. feed grains exports in 1995 to be up nearly 50 percent over 1987/88, reaching nearly 74 million metric tons.

It is important to note the distribution of the export markets. In 1981/82, the top U.S. feed grains markets included Japan, South Korea, the Soviet Union, Taiwan, the United Kingdom, Spain, Portugal, East Germany and Belgium. By 1987/88 the list of top U.S. feed grains markets include Japan, the Soviet Union, South Korea, Taiwan, Mexico, West Germany, Venezuela, Saudi Arabia, Algeria and Egypt. Half of these countries are "new" customers within the last seven years.

We expect the greatest growth in feed grains markets to occur in Asia. Imports to Asian countries from all sources is expected to increase nearly 54 percent by 1995, about 18 million metric tons. The other regions we expect to have increased imports include the Middle East, Latin America and Africa. The growth of feed grains imports to Eastern European countries will slow, but we believe it will still increase by slightly more than 10 percent.

We believe the potential is there for U.S. feed grains exports to grow in the next five years. But U.S. feed grains must remain price competitive on the world market. We must continue to push for liberalization of global trade through multilateral negotiations. Our comparative advantage in both production and in our marketing system must be recognized and respected.

World growth in exports is open to the United States if we establish consistent export policies and if we maintain strong market development efforts.

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OILSEEDS AND PRODUCTS OUTLOOK

Philip L. Mackie
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It is my task today to present USDA's view of the oilseed and oilseed product situation in 1988/89. I would like to put this situation in the context of developments in the world oilseed situation during the 1980's. I will place particular emphasis on the soybean sector which is the residual in the world oilseed complex, and in which the United States is the world's residual supplier.

Let me explain what I mean by residual supplier. Very simply this means that every other country in the world, and within the oilseed complex, every other oilseed, can take what they want of the world market, and we can have the rest. We make the adjustments in the market; initially through changes in stocks, and subsequently through changes in acreage. We can control--over time--price or quantity; but not both. A lot of people don't like to hear this, and it is of course, an oversimplification. Some countries and areas of the world can afford to produce irrespective of market factors--for example, the European Economic Community. But, this concept of the United States as residual supplier, in my view, should be the starting point for developing trade policy, farm policy, and marketing strategies--which is the theme of our conference this year.

After two decades of relatively uninterrupted expansion, the U.S. oilseed industry has been subject to severe economic stress in the 1980's. The farm value of U.S. soybean production peaked in 1979 at \$14.2 billion and exports of soybeans and products peaked in the 1979/80 marketing year at \$8.6 billion. We exported 52 percent of U.S. soybean production that year--either as soybeans, meal, or oil--a total of 32.2 million tons.

In 1987, the farm value of U.S. soybean production is estimated at \$11.8 billion, and exports of soybeans and products totaled \$6.9 billion. The U.S. soybean industry is still a world industry. We exported 55 percent of U.S. production last year--either as beans, meal, or oil--a total of 28.8 million tons. But, it was a smaller industry than at the beginning of the decade--down 15 percent in production; down 17 percent in farm level value; and down 11 percent in volume of exports.

Why?

The decline in U.S. exports was due to both a leveling of world demand in the 1980's, and to continued increases in production by competitive exporting countries. The leveling of demand, caused by a falloff in economic growth in both developed and developing countries, and severe debt and foreign exchange availability problems in several developing countries, was exacerbated on the trade side by stepped up efforts to increase domestic production by traditional importing countries. Another major factor influencing world oilseed markets in the 1980's is that world production of meal and oil has increased at disparate rates, further impacting world trade patterns and prices in the oilseed complex. World production of protein meals (44 percent protein basis) increased from 87.3 million tons in 1979/80 to 107.7 million tons in 1987/88--23 percent, while world production of vegetable oils increased from 38.2 million tons to 52.4 million tons--37 percent. Over this period, world production of soybeans increased by 10 percent, while world production of other oilseeds--primarily "soft" seeds relatively high in oil and low in protein content--increased by 35 percent, and world production of palm oil, now the leading vegetable oil in world trade, increased by 79 percent.

Prices for meal increased relative to prices for oil as world oil production increased relative to meal production. U.S. farm level prices for soybeans averaged \$6.15 per bushel in 1987/88, nearly the same as in 1979/80, but meal and oil prices (basis Decatur) were up 22 percent and down 7 percent, respectively. And, this change in U.S. price relationships is understated in terms of changes on the world market. During the 1980's, the U.S. has become less of a factor in world oil export markets--to the point where we are now no longer a commercial exporter of soybean oil, and in fact have imported significant quantities in recent months. At times in the past year the f.o.b. spread between U.S. and South American soybean oil has been as high as 7.5 cents per pound.

A very high proportion of world consumption of protein meals and vegetable oils is traded internationally, either in the form of oilseeds or products. Soybean meal accounted for 62 percent of world production of protein meals (44 percent protein basis) in 1987/88, and world trade in soybeans and soybean meal (excluding EC exports) accounted for fully 43 percent of world protein meal consumption. These percentages have declined only slightly during the 1980's. Soybean meal is holding its own as the world's premier protein feed.

Unfortunately, this is not the case for soybean oil. In 1987/88, soybean oil accounted for 29 percent of world vegetable oil consumption--down from 33 percent in 1979/80--and world trade (net of EC imports) in soybeans and soybean oil (oil basis) accounted for 16 percent of world vegetable oil consumption--down from 21 percent in 1979/80.

The trend between 1979/80 and 1987/88 has been for an increasing share of world oilseed complex trade to move in the form of products rather than seed. In 1987/88, soybeans accounted for 75 percent of world oilseed trade, soybean meal accounted for 65 percent of world trade in protein meals, and soybean oil accounted for 19 percent of world trade in vegetable oils. World trade in soybeans increased only 1 percent between 1979/80 and 1987/88, while trade in soybean oil increased 14 percent and trade in soybean meal increased 49 percent. Nearly all of this increased trade in soybean products originated in Brazil and

Argentina (particularly Argentina) where government policies provide incentives to the crushing industry and stimulate the export of oilseed products rather than direct exports of oilseeds.

This shift in trade patterns has also been brought about by changes in the demand structure of importing countries. For example, European Community imports of soybeans dropped 2.3 million tons between 1979/80 and 1987/88, while net imports of soybean meal increased by 1.3 million tons. This change resulted from the tremendous, policy induced, increases in EC production of rapeseed and sunflowerseed which increased domestic production of vegetable oil relative to protein meal. The import share of the EC's oilseed market decreased from 97 percent in 1982 to 77 percent in 1987 (meal basis), and from 66 percent in 1982 to 23 percent in 1987 (oil basis).

As a result of these policies and shifts in trade patterns, the location of world soybean crush has shifted away from the United States and the EC toward South America.

There also have been major changes in import markets for soybeans and soybean products in the 1980's. The EC is still the major import market for soybeans with 46 percent of world trade in 1987/88, but this share was down 9 percentage points from 1979/80. On the other hand, imports have increased in Taiwan, Korea, Japan, the USSR, and Mexico. For soybean meal, about 60 percent of the increase in world trade over this period has occurred in the USSR and the EC. For soybean oil, India, the major importer in 1979/80 has moved towards palm oil, but soybean oil imports have shown steady increases in the Middle East and North Africa, and in Pakistan.

To return to my original point about the U.S. as residual supplier, the brunt of these changes in market forces has been reflected onto the U.S. oilseed sector, particularly soybeans. Between 1979/80 and 1987/88, U.S. soybean production dropped 15 percent, and exports of soybeans, soybean meal, and soybean oil were down 8, 15, and 25 percent, respectively. In contrast, soybean production in South America (Brazil, Argentina, and Paraguay) increased 49 percent over this period, and exports of soybeans, soybean meal, and soybean oil were up 38, 100, and 167 percent, respectively. While world trade in soybeans and soybean products increased 17 percent between 1979/80 and 1987/88, U.S. exports were down 11 percent. The U.S. share of world trade in soybeans and products dropped from 73 percent to 56 percent.

What does this portend for the situation in 1988/89. U.S. oilseed production is down 19 percent from last year, and soybean production is down 21 percent. Considering last year's drawdown in stocks, U.S. soybean supplies are down 23 percent. We have good supplies of cottonseed and, for the first time in three years, peanuts, but the sunflowerseed crop is only about half last year's level and only about a fourth of the average crop size at the beginning of the decade.

Despite the sharp reduction in U.S. supplies, there has been no panic in the markets. Export sales are down (except for soybean meal). Prices are higher than a year ago, but after spiking early in the summer have been struggling in recent weeks. We are facing a tight, but not a panic situation. The U.S. soybean crop is still very important to the world, but not nearly as significant

as 10 years ago. Through a continuation of the trends discussed above, particularly an expected sharp increase in the South American soybean crop, and a sharp drawdown in U.S. stocks, we should get through the 1988/89 year with only a minimal impact on world consumption levels of protein meal and vegetable oil. But, markets will be highly sensitive to weather conditions as they impact development of this years' crops, both those currently being planted in South America and next year's in the Northern Hemisphere.

Although the U.S. soybean crop is down 21 percent, we are forecasting that world soybean production will be down only 9 percent, and total world oilseed production only 3 percent.

With some drawdown in stocks, particularly in the United States, we are forecasting that world protein meal consumption will be down only about 1.0 percent, and that there will be a nearly normal increase in world vegetable oil consumption of about 3.4 percent.

With most of this years' production shortfall occurring in soybeans, the impact will be felt more heavily in the protein meal sector than for vegetable oil. This is reflected in our price forecasts. We expect that soybean meal prices may average about 15 percent higher than last year, while soybean oil prices may do well to equal the 1987/88 average. We expect world consumption of soybean meal to be down about 2.0 million tons in 1988/89, with the decrease about evenly split between the United States and the EC where consumption appears to be most sensitive to prices.

We forecast that U.S. exports of soybeans and products will be down about 30 percent in 1988/89, but that this drop will be nearly offset by increases from South America so that world trade in soybeans and products will be down only about 4 percent. The U.S. share of world trade in soybeans and products will fall to 40 percent.

The 1988/89 situation puts us in something of a dilemma. On the one hand, we need good crops in South America this year to avoid the kind of severe market reaction we have experienced too many times in the past. On the other hand, how soon and how fast will we be able to recover from the sharp fall in world market share which we expect this year? And, how will we do it?

I have not given you many specific numbers. USDA publishes those on a regular basis in the monthly Supply and Demand Report, the FAS Oilseeds Circular, and in various ERS publications. I have tried to give you some background. Each of the points I have raised could be expanded, and I have not mentioned several others--notably the impact of our own farm program. You may not agree with my line of reasoning, but I hope I have given you a basis for discussion, and some food for thought for the future.

Thank you for your attention.

TABLE 1
U.S. SOYBEAN AND PRODUCT SUPPLY/USE
(Million MT)

	: 1979/80	: 1987/88	: 1988/89
<u>SOYBEANS:</u>			
Beginning Stocks	4.8	11.9	8.2
Production	61.5	52.3	41.2
Total Supply	66.3	64.2	49.8
Crush	30.6	32.0	28.0
Exports	23.8	21.8	15.4
Ending Stocks	9.8	8.2	3.4
<u>SOYBEAN MEAL:</u>			
Beginning Stocks	0.2	0.2	0.1
Production	24.6	25.5	22.2
Domestic Consumption	17.4	19.4	18.1
Exports	7.2	6.1	4.0
Ending Stocks	0.2	0.1	0.3
<u>SOYBEAN OIL:</u>			
Beginning Stocks	0.4	0.8	1.0
Production	5.5	5.9	5.2
Domestic Consumption	4.1	5.0	5.0
Exports	1.2	0.9	0.6
Ending Stocks	0.5	1.0	0.6
<u>U.S. PRICE:</u>			
Soybeans (\$/bu.)	6.28	6.15	6.75-8.75
Soybean Meal (\$/st.)	181.90	221.90	235-275
Soybean Oil (£/lb.)	24.30	22.65	21.0-25.0

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TABLE 2
WORLD SOYBEAN AND PRODUCTS SUPPLY/USE
(Million MT)

	: 1979/80	: 1987/88	: 1988/89
<u>SOYBEAN PRODUCTION</u>			
World	93.5	102.9	94.0
U.S.	61.5	52.3	41.2
Competitors <u>1/</u>	19.3	28.7	32.2
China	7.5	12.2	11.0
<u>MEAL CONSUMPTION</u>			
World	57.4	67.6	75.6
U.S.	17.4	19.4	18.1
Total Foreign	40.0	48.2	47.5
EC-12	18.8	18.0	17.1
Eastern Europe	5.0	5.2	4.7
Japan	3.0	3.6	3.5
USSR	1.7	4.6	4.8
Others	11.5	16.8	17.4
<u>OIL CONSUMPTION</u>			
World	12.2	14.8	14.9
U.S.	4.1	5.0	5.0
Total Foreign	8.1	9.8	9.9
EC-12	1.7	1.4	1.4
India	0.7	0.6	0.5
Pakistan	0.2	0.4	0.4
Others	5.5	7.4	7.6

1/ Brazil, Argentina, and Paraguay.

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TABLE 3

SOYBEANS
TRADE, CRUSH, AND STOCKS
(Million MT)

	: 1979/80	: 1987/88	: 1988/89
<u>EXPORT</u>			
World <u>1/</u>	28.0	28.6	25.3
U.S.	23.8	21.8	15.4
Competitors <u>2/</u>	3.9	5.2	8.0
<u>SELECTED IMPORTERS</u>			
EC-12 <u>3/</u>	15.3	13.0	11.8
Japan	4.2	4.9	4.8
Taiwan	0.9	1.9	1.8
USSR	1.1	1.5	1.5
Mexico	0.8	1.0	1.1
Korea	0.4	1.2	1.2
<u>CRUSH</u>			
World	71.6	83.9	82.7
U.S.	30.6	32.0	28.0
EC-12	15.5	12.9	11.6
Japan	3.5	4.0	3.9
Brazil	10.6	12.6	15.0
Argentina	0.7	5.4	7.5
<u>STOCKS</u>			
World <u>4/</u>	18.3	19.8	13.9
Expressed as Months of Crush	3.1	2.8	2.0

1/ Net of EC intra-trade, Brazil's and Paraguay's imports.

2/ Brazil, Argentina, and Paraguay net.

3/ Net of EC intra-trade.

4/ Known as stocks only.

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TABLE 4
SOYBEAN PRODUCT TRADE
(Million MT)

	: 1979/80	: 1987/88	: 1988/89
<u>SOYBEAN MEAL</u>			
<u>EXPORT</u>			
World <u>1/</u>	13.6	20.2	20.9
U.S.	7.2	6.1	4.0
Competitor <u>2/</u>	5.7	11.5	14.5
<u>SELECTED IMPORTS</u>			
EC-12 <u>1/</u>	6.3	7.6	7.8
Eastern Europe	3.8	3.9	3.5
USSR	0.3	3.0	3.3
<u>SOYBEAN OIL</u>			
<u>EXPORTS</u>			
World <u>3/</u>	2.78	3.21	3.25
U.S.	1.22	.86	.61
EC-12 <u>4/</u>	0.83	.81	.60
Brazil <u>5/</u>	0.52	1.39	1.91
<u>SELECTED IMPORTS</u>			
India	.63	.40	.25
Pakistan	.21	.43	.38
ME/N. Africa	.63	.83	.81
Latin America <u>5/</u>	.38	.39	.42
Eastern Europe	.14	.11	.14

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- 1/ Excluding EC Exports.
2/ Brazil and Argentina.
3/ Excluding EC imports and Brazil's imports.
4/ Excluding EC imports.
5/ Excluding Brazil's imports.

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TABLE 5
WORLD OILSEEDS SUPPLY AND USE
(Million MT)

	: 1979/80	: 1987/88	: 1988/89	: 1989/90
<u>Beginning Stocks</u>				
Soybeans		19.7	19.8	13.9
Other		<u>3.6</u>	<u>3.7</u>	<u>3.4</u>
Total		23.3	23.5	17.3
<u>Production</u>				
Soybeans	93.5	102.9	94.0	
Other	<u>76.5</u>	<u>103.5</u>	<u>106.3</u>	
Total	170.0	206.4	200.3	
<u>Total Supply</u>				
Soybeans		122.6	113.8	
Other		<u>107.1</u>	<u>110.0</u>	
Total		229.7	223.8	
<u>Exports</u>				
Soybeans	28.0	28.6	26.0	
Other	<u>6.9</u>	<u>9.4</u>	<u>9.1</u>	
Total	34.9	39.0	35.1	
<u>Crush</u>				
Soybeans	71.6	83.9	82.7	
Other	<u>59.0</u>	<u>81.2</u>	<u>82.8</u>	
Total	130.6	165.1	166.5	

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TABLE 6
MAJOR VEGETABLE AND MARINE OILS
(Million MT)

	: 1979/80	: 1987/88	: 1988/89
<u>Beginning Stocks</u>			
Soybeans		2.0	2.1
Other		<u>4.1</u>	<u>4.5</u>
Total		6.1	6.6
<u>Production</u>			
Soybean	12.7	15.0	14.9
Other	<u>25.5</u>	<u>37.5</u>	<u>38.7</u>
Total	38.2	52.5	53.6
<u>Total Supply</u>			
Soybean		17.0	17.0
Other		<u>41.6</u>	<u>43.2</u>
Total		58.6	60.2
<u>Exports</u>			
Soybeans ^{1/}	2.8	3.2	3.3
Other	<u>9.7</u>	<u>13.6</u>	<u>13.9</u>
Total	12.5	16.8	17.2
<u>Consumption</u>			
Soybean	12.2	14.8	14.9
Other	<u>24.6</u>	<u>27.0</u>	<u>38.7</u>
Total	36.8	51.8	53.6

1/ Excluding EC imports and Brazil's imports.

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TABLE 7

U.S. VEGETABLE OIL SITUATION: 1987/88-1988/89
(Million Metric Tons)

	: 1979/89	: 1987/88	: 1988/89
<u>WORLD OIL PRODUCTION</u>	38.2	52.5	53.6
Other than Soybean	25.5	37.5	38.7
Soybean	12.7	15.0	14.9
<u>COMPETING OIL CROPS</u>			
World Palm Oil	4.8	8.6	9.3
World Coconut Oil	2.7	2.7	2.8
World Fish Oil	1.2	1.4	1.5
Canada Rapeseed	3.4	3.9	4.2
EC Rapeseed	1.2	6.0	5.3
EC Sunflowerseed	0.7	3.9	4.0
Argentine Sunflowerseed	3.3	1.2	0.6
<u>U.S. VEGETABLE OIL EXPORTS</u>			
Total	1.816	1.539	1.194
Soybeans	1.220	.862	.612
Cottonseed	.330	.191	.200
Sunflowerseed	.086	.315	.220
Corn	.064	.170	.175
Peanut	.007	.003	.005
<u>U.S. SOYBEAN OIL EXPORTS</u>			
<u>TO MAJOR MARKETS</u>			
Brazil	.076	0	
Other South America	.179	.029	
North America	.133	.069	
India	.428	.152	
Pakistan	.147	.397	
China	.100	0	

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TABLE 8
U.S. OILSEED PRODUCTION
(Million MT)

	: Average	:	:
	: 1978/79-1982/83	: 1987/88	: 1988/89
Soybeans	: 55.0	52.3	41.2
Cottonseed	: 4.7	5.2	5.3
Peanuts	: 1.6	1.6	1.9
Sunflowerseed	: 2.2	1.2	0.6
Flaxseed	: 0.2	0.2	0.1
	: -----		
Total	: 63.7	60.5	49.1

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TABLE 9
WORLD OILSEED PRODUCTION
(Million MT)

	: Average :		
	: 1978/79-1982/83 :	1987/88	: 1988/89
<u>SOYBEAN TOTAL</u>	<u>86.2</u>	<u>102.9</u>	<u>94.0</u>
U.S.	55.0	52.3	41.2
Brazil/Argentina/Paraguay	18.0	28.7	32.2
China	8.3	12.2	11.0
<u>COTTONSEED TOTAL</u>	<u>26.0</u>	<u>30.9</u>	<u>32.2</u>
China	5.5	7.2	7.2
USSR	4.9	4.5	4.9
U.S.	4.7	5.2	5.3
<u>PEANUT TOTAL</u>	<u>17.8</u>	<u>19.8</u>	<u>21.6</u>
India	6.0	4.8	6.8
China	3.3	6.2	5.8
U.S.	1.6	1.6	1.9
<u>SUNFLOWERSEED TOTAL</u>	<u>14.5</u>	<u>20.6</u>	<u>21.3</u>
USSR	5.1	6.1	6.3
Argentina	1.7	2.8	3.3
U.S.	2.2	1.2	0.6
<u>RAPESEED TOTAL</u>	<u>11.9</u>	<u>23.0</u>	<u>21.7</u>
China	3.3	6.6	5.7
Canada	2.7	3.9	4.2
EC-12	1.8	6.0	5.3
<u>FLAXSEED TOTAL</u>	<u>2.4</u>	<u>2.3</u>	<u>1.8</u>
Argentina	0.7	0.6	0.5
Canada	0.6	0.7	0.4
India	0.4	0.4	0.4

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OILSEEDS OUTLOOK, INDUSTRY REACTION //

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Today I intend to focus my discussion on the situation and conditions that have seen a reversal in the U.S. position in soybean production and export trade. I will conclude with a brief look at the challenge facing soybeans in the short-to-intermediate future.

Graph 1 (Historical Soybean Acreage)

Spurred by chronic shortages of fats and oils during World War II, soybean acreage expanded rapidly in the 1940s to meet domestic vegetable oil needs. At about the same time it was recognized that soybean meal represented a premium source of high-protein supplement for livestock rations. An expanding demand for the joint products of soybean oil and soybean meal ensured that soybeans had a place in U.S. agriculture. In the 40 years to 1980, the area devoted to soybeans increased sevenfold to meet domestic and export requirements.

Graph 2 (Soybean Supply/Demand Trends)

Soybean production crested in 1979 at 2,260 million bushels on record high plantings of 71.4 million acres. Stocks were kept in check by growth in soybean and soybean meal exports and expanding use at home. Annual disappearance averaged in excess of two billion bushels until 1983 when a drought raised domestic soybean prices at the same time exports were trimmed by a surging U.S. dollar in international exchange markets.

By the summer of 1985, the farm gate soybean price was insufficient to cover storage costs and repay the non-recourse loan advance of \$5.02 per bushel. Farmers delivered in excess of 400 million bushels to the Commodity Credit Corporation (CCC) from the 1984 and 1985 soybean harvests.

Graph 3 (Soybean Stocks-From Surplus to Scarcity)

At the end of the 1985/86 marketing year, soybean stocks stood at 536 million bushels. This represented over 100 days of use at disappearance rates in the 1986/87 marketing year. Soybean prices were very depressed despite the large bloc of surplus stocks held by the CCC that would remain isolated from the market until prices reached a formula level 105% of the non-recourse loan plus monthly carrying charges. The surplus was worked down in 1986 and 1987 because of reduced plantings and some recovery in export and domestic uses.

Graph 4 (Soybean Stocks:Use Ratio)

From the record high stocks:use ratio of 28.5% at August 31, 1986, incremental improvements were made in the next two years that left soybean stocks at a more comfortable 14% of use last August 31. The devastating drought of 1988 reduced production to the extent that when added to carryover, domestic and export uses would have to be rationed in order to maintain minimum "pipeline" stocks. USDA estimates have placed the stocks level at 125 million bushels at the end of the 1988/89 marketing year. This will produce a stocks:use ratio that approaches historical lows that were seen following the drought of 1976 and during the export surge of 1973/74.

Graph 5 (Soybean Prices Rebounding)

Soybean prices staged a recovery in the spring and summer of 1987 after an extended period during which farm gate prices dipped to lows not seen since the mid-1970s. Stocks held by the CCC were resold as prices moved to or above the formula resale level and are currently negligible. However, soybean acreage in 1988 failed to respond to the improved prices as happened during the '60s, '70s and early years of the '80s.

Graph 6 (Soybean/Corn Price Ratio)

If the soybean/corn cash price relationship alone was used to predict soybean acreage, soybean plantings should have increased significantly in both 1987 and 1988. Historically, a price relationship above 2.5:1 has been an indicator for acreage movement out of corn and into soybeans. In fact, farm gate soybean prices have been in excess of three times the farm level corn price for 26 consecutive months. Chicago Board of Trade futures prices for soybean and corn contracts are signaling that farmers should plant more soybeans in 1989 as the nearby soybean/corn futures contract price ratio is around 2.80:1 with the fall of 1989 price ratio eroding only slightly to 2.74:1. This analysis ignores the effect of government programs on farmers' decisions as it is strictly a cash selling price analysis.

It is no revelation to anyone familiar with the Food Security Act of 1985 (Farm Bill) that farmers who comply with the acreage reduction requirement for program crops have a different decision matrix unrelated to cash price relationships. Program compliers are eligible to receive a per bushel deficiency payment that represents the difference between market prices and the announced target price for program crops. That relationship has been considerably less favorable for soybeans as illustrated by the Soybean/Corn Target Price ratio shown in Graph 6.

Graph 7 (Corn and Wheat Program Compliance)

A high percentage of sign-up and compliance for program crops has in effect restricted soybean plantings, especially in the most recent two crop years. Financial uncertainty for much of the agricultural sector and the attractiveness of target prices for program crops made soybean production risky by comparison. This effect has not been restricted just to the geography concerned with the alternate choice of corn or soybeans. A sharp decline in soft red winter wheat acreage in the Southeast and Delta states and the corresponding decline in double-crop soybeans is attributable to the low proven wheat yield from those areas and inability to establish a base history for wheat as defined in the Food Security Act of 1988. Low cash prices for both wheat and soybeans made it unattractive to produce either crop in the most recent two or three years.

Graph 8 (Acreage Declines Most Pronounced in Delta and Southeast)

Soybean acreage has been halved in the Southeast since 1982. Plantings in the Delta states have been cut by one-third in the same period. Smaller reductions have been experienced in the Southwest and East.

Graph 9 (South American Soybean Production Mounts)

While U.S. soybean production has trended lower during the 1980s, South American output has more than doubled. The combined production from Brazil, Argentina and Paraguay in their 1989 harvest is expected to be nearly 1,200 million bushels. Southern Hemisphere soybean production has expanded largely because of a pressing need to generate export exchange earnings to service their massive foreign debt. Although soybean prices have been depressed until recently, world wheat and corn prices have been even more depressed. In effect South American producers view the cash soybean/corn price ratio shown in Graph 6 as the relationship appropriate for planting decisions. This has pushed them to increase soybean plantings and reduce corn and wheat plantings.

Graph 10 (Share of Export Trade in Soybeans and Soybean Meal)

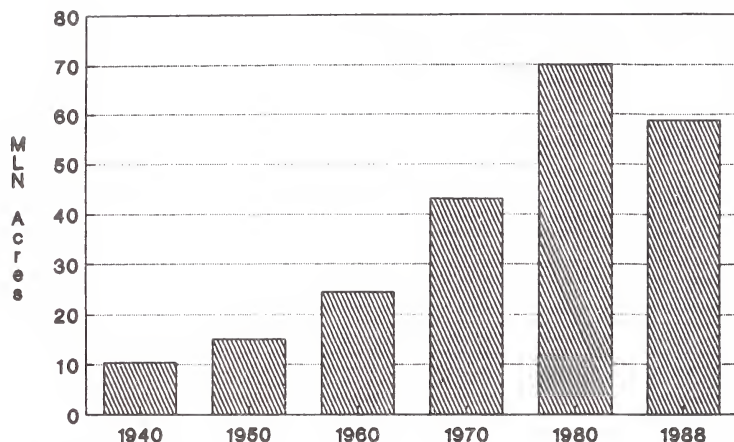
The U.S. share of world export trade in soybeans and soybean meal has declined at an alarming pace during the 1980s. The accelerated pace of share loss has been magnified by the fact that world export volumes have been growing at a compounded rate of three to four percent per year. USDA World Agriculture Outlook Board projections for export volumes in 1988/89 shows the U.S. falling to under 35% of the combined soybean and soybean meal exports. The challenge for the U.S. soybean sector is to halt the slide in world export share.

This will happen only if U.S. farmers have the flexibility to respond to market price signals. Title III, Subtitle A of the Disaster Assistance Act of 1988 was a step in the right direction as it gave farmers an option to plant soybeans or sunflower on program crop "permitted acres". The program, although based on sound principle is likely to be hamstrung by administrative uncertainties and communications snags. The 10% minimum and 25% maximum amount of permitted program acreage that can be planted to soybeans or sunflower is confusing to farmers. The bottom line is it will still be difficult for soybean to compete with the Feed Grain Program in 1989 as farmers will be ineligible for deficiency payments on acreage switched to soybeans.

Some farmers are expected to take advantage of the option to plant oilseeds on permitted base in 1989 but a massive substitution of soybeans for grain is unlikely. My forecast for soybean plantings in 1989 is 61 million acres but prices in late winter and early spring could alter that outlook.

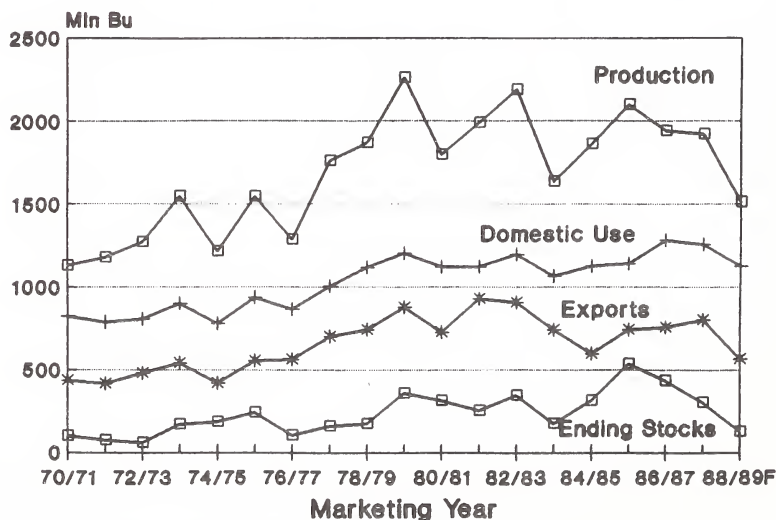
Looking further into the future, a winding down of the large subsidies now affecting world grain prices would clearly benefit the soybean sector. At present, subsidies offered in world grain trade have depressed corn and wheat prices to the extent that Southern Hemisphere producers are pushed to produce oilseeds as this is the commodity that is least subsidized in world trade. On the other hand, incentives for participating in the government program for grains have moved U.S. farmers in the opposite direction and to the detriment of a viable soybean sector.

U.S. Soybean Acreage Increased Sevenfold in Just 40 Years



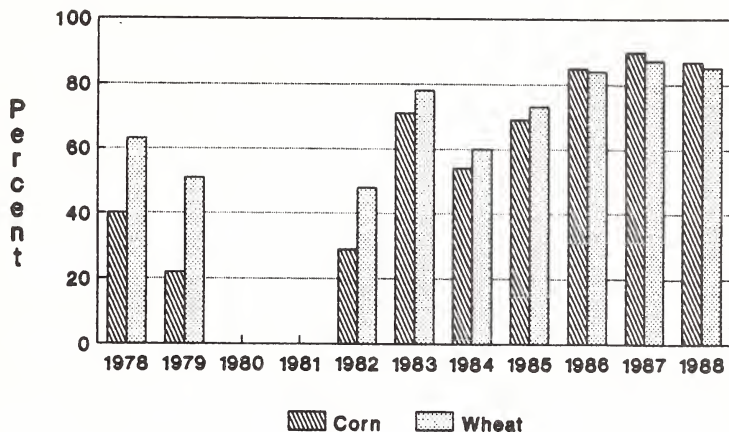
Source: USDA, NASS

Soybean Supply/Demand Trends



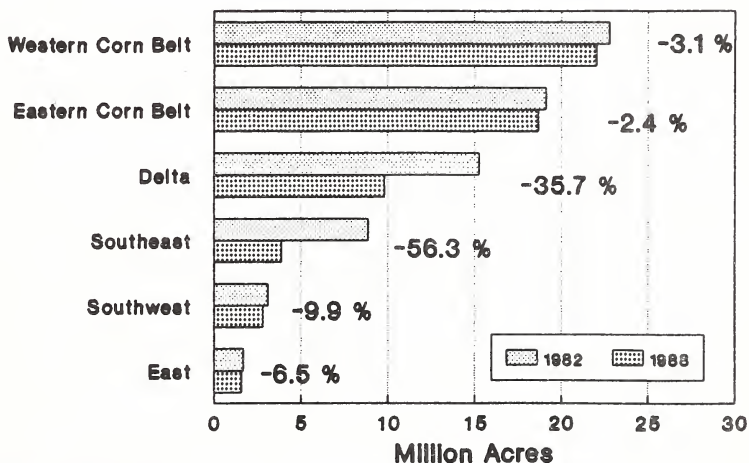
Source: USDA, World Ag Outlook Board

Percent of Eligible Corn and Wheat Base Acres Enrolled in Government Programs



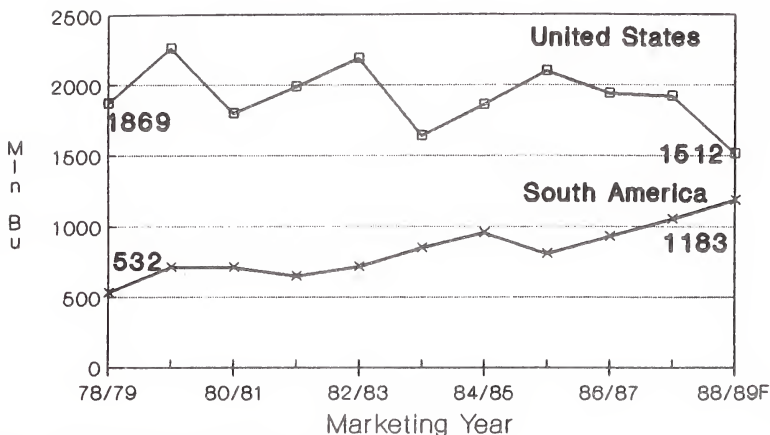
Source: USDA, ABCS Department

Acreage Declines Have Been Most Pronounced in The Delta and Southeast



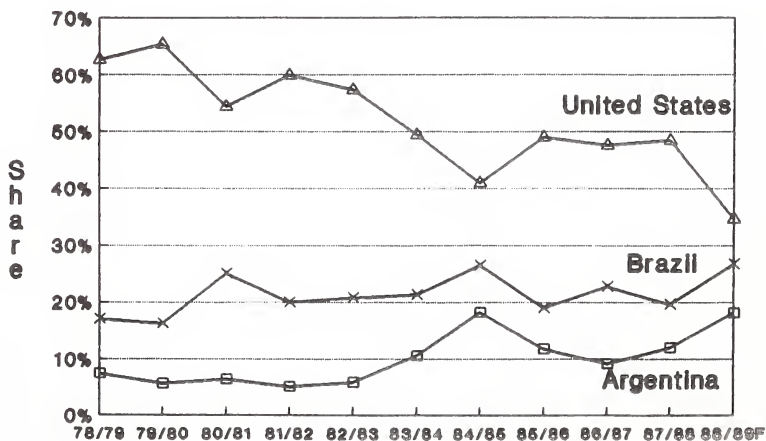
Source: USDA, NASS

South American Soy Production Mounts While U.S. Recedes



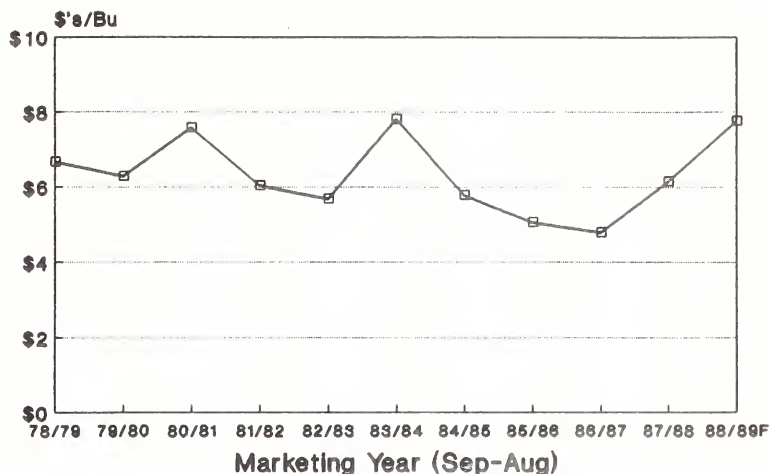
Source: USDA, World Oilseed Situation and Market Outlook

Meal Equivalent (SBME) Share of Export Trade in Beans and Meal



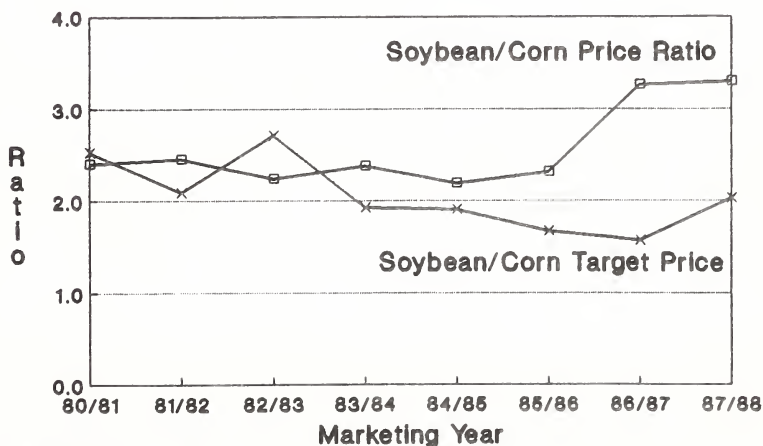
Soybeans + Soybean Meal on SBME Basis

Soybean Prices Rebounding From Ten Year Low



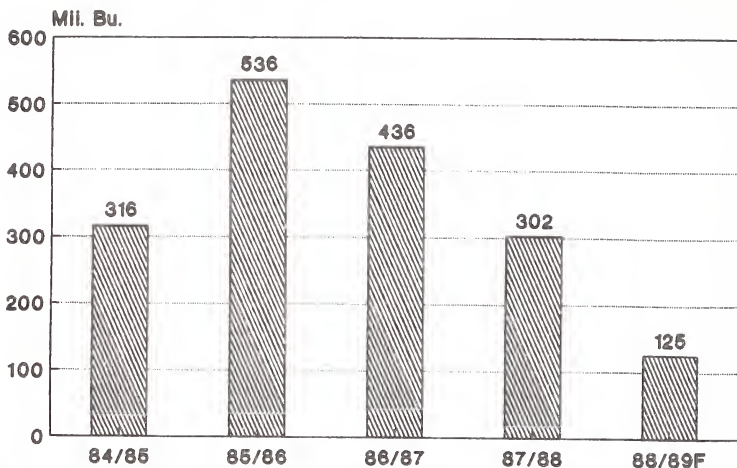
Source: USDA, World Ag Outlook Board

Feed Grain Program Causes Abnormal Soy/Corn Price Ratio



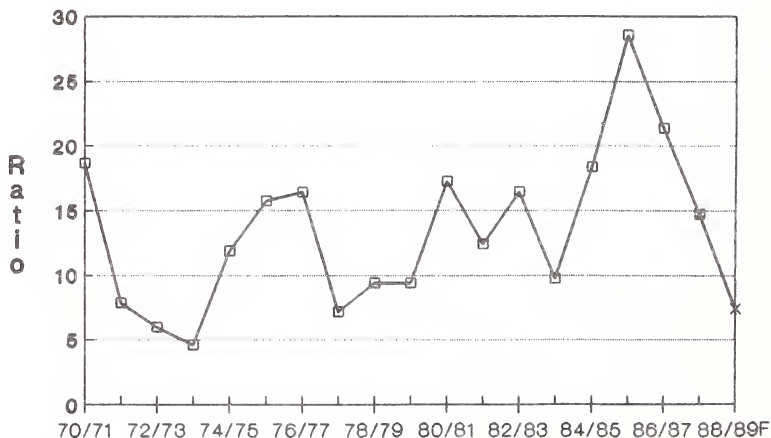
Source: ASA Economics Dept.

Soybean Stocks--- From Surplus to Scarcity



Year-End Stocks at Aug 31

Soybean Stocks:Use Ratio Will Approach Historical Lows in 88/89



Source: USDA, World Ag Outlook Board



17 **Serving Oilseed Customers in International Markets**

by

Alan J. Tennesen

Vice President

International Trading Department

Cargill, Incorporated

I've been asked to discuss the outlook for oilseeds in international markets. My focus as an oilseed processor is to meet the needs of customers around the world for vegetable oil and protein meal. The processing and trading industry does that by purchasing oilseeds and products in areas where they are produced in abundance and moving them to countries in which demand exceeds domestically produced supply.

The good news is that oilseed customers have a huge and growing appetite! Worldwide demand for protein and oil continues to rise four percent per year. There are real opportunities for farmers to serve the expanding demand. The bad news is that U.S. oilseed producers have been prevented by policies of their own government from participating in the world market's growth over the past decade.

Let's look at those two issues more closely as they relate to soybeans, the dominant U.S. oilseed crop.

Market Realities

(Slide I) This slide shows the increase in world soybean production since 1967 in millions of metric tons (mmt). Output more than tripled, rising from 28.3 mmt to 90.2 mmt in only 20 years. Soybeans are the single most important oilseed, accounting for about half of world oilseed output.

Relatively few soybeans are held in long-term storage. As a practical matter, the increase in production closely corresponds to rising consumption. Expanding populations and rising incomes lead oilseed consumption growth. For fats and oils the growth has amounted to two mmt per year over the past five years. That's equivalent to an annual production increase of 400 million bushels of soybeans, or the output from about 12 million acres.

(Slide II) This second slide shows U.S. soybean production from 1967 to 1987. It does not include the drought-damaged crop that has been harvested this fall.

Take particular notice of the year 1979 because it represents a turning point for domestic soybean output. Up to that year the United States captured the lion's share of global soybean demand growth. Between 1967 and 1979 U.S. production multiplied 2.3 times, from 26.6 mmt to 61.5 mmt. Since 1979 U.S. production has trended downward, yet the previous slide showed vigorous growth in world soybean output. If the 1988 drought year was included, production would be down by more than one-third from the peak.

(Slide III) It's not surprising that U.S. soybean acreage tells the same story. Plantings rose to over 71 million acres in 1979. By 1988 plantings had fallen to 58.8 million acres and were almost identical to those of eleven years earlier.

(Slide IV) On the other hand, Brazilian and Argentine acreage has expanded vigorously. It almost doubled during this same period.

It's interesting to note that there has been an acre-for-acre shift between the U.S. and South America. Since 1979 American farmers have reduced soybean plantings by 12.6 million acres. Brazilian and Argentine farmers have expanded by 12.5 million acres.

These are the unfortunate realities facing U.S. farmers and soybean processors. As global consumers have obtained more and more of their supplies from non-U.S. origins, the domestic industry has shrunk. Ten soybean crushing plants have been closed around the country in just the last two years, idling 500 workers.

Such developments are particularly distressing since U.S. soybean farmers appear to have a strong comparative advantage. Their variable production costs are among the world's lowest. Handling, transporting, storing and processing infrastructure are in place to ship additional bushels to global customers at costs and volumes others cannot match.

Policy Problems

So, why is the U.S. soybean sector in decline? Although not the only factor, U.S. farm policies played a major role in eroding the domestic industry and surrendering its world market share to competitors. Two policy aspects were at fault.

(Slide V) The first was a shift in soybean loan policy. For more than a decade prior to 1977, the U.S. soybean loan had held steadily in the \$2.25 to \$2.50 per bushel range. Then, in two one-dollar increments, the U.S. soybean loan was raised to \$4.50 by 1978-79. That's substantially above the \$1.50-\$2.00 per bushel variable cost at which most U.S. soybeans are grown. This gave South America the incentive to expand. Worse, it gave them price-protection for the investments they needed to make in clearing land, building roads and constructing elevators and processing plants.

(Slide VI) The second factor was a dramatic change in the impact of other U.S. commodity programs. For example, after more than a decade in which corn supports generally were in the \$1.25 to \$1.35 range, the 1977 Food and Agriculture Act escalated the corn target price to \$2.00 in 1977-78 and to \$2.40 by 1980. The 1981 legislation pushed it up further to \$3.03 and established acreage bases that make these programs even more of an entitlement. The attraction of building corn base to qualify for these sharply escalated corn support levels proved irresistible, bidding land away from soybeans.

Consequently, in the late 1970s and early 1980s, the U.S. soybean industry was dealt a double blow. A sharply higher soybean price floor gave aid and comfort to Southern Hemisphere soybean production. And escalating target prices for corn and other crops overwhelmed market forces to bid land away from soybeans and sunflowers in this country.

Search for Solutions

What can be done to put the industry back on track for the future? The first step is to recognize and admit that many of our wounds have been self-inflicted. That recognition has become widespread over the past year.

Congress grappled with the issue and responded by passing the Disaster Assistance Act of 1988 (DAA). The DAA includes soybean planting provisions allowing farmers to shift acreage from target-price crops to soybeans and sunflowers without losing valuable base history. Despite the good intentions of Congress, these provisions have two shortcomings that were not understood fully when the legislation passed.

One is that unnecessary strings were attached to the program. Farmers must sign up in advance. Only 10 to 25 percent of the base may shift. The Secretary of Agriculture may reduce the acreage a farmer wishes to shift if he anticipates prices otherwise would drop below 115 percent of the loan rate. This planting option is only required to be offered to farmers for one year. These strings make it inappropriate to refer to the provision as allowing "planting flexibility."

I'm sure the 115 percent price-protection provision is appreciated by some U.S. farmers. My concern is that it has been even more appreciated by South American farmers. When combined with the higher-than-anticipated \$4.77 loan rate for next year, producers in Brazil and Argentina perceive the U.S. government as being committed to keeping soybean prices above \$5.50 in 1989-90.

The marketplace probably would have accomplished that job anyway. But, the U.S. guarantee enables South American farmers to make their expansion plans with greater confidence and aggressiveness. This type of "protection" and "planting flexibility" (that isn't flexible) primarily serves the interests of South Americans, not farmers in the U.S.

The second shortcoming of the soybean planting provision is that farmers must give up deficiency payments on the acreage that shifts. This strongly skews the planting decision away from soybeans, holding acres in target-price crops. That, in turn, will maintain program-created distortions in commodity price relationships.

The soybean/corn price ratio, for instance, is likely to remain wider than its normal 2.2 to 2.4 range. Fall 1989 futures have been indicating a price spread in the range of 2.7 to 2.9. This will continue to encourage South American farmers to shift acreage into soybeans, while expansion of soybean acres in the United States is discouraged by program crop incentives.

The bottom line is that the center of gravity for the world soybean industry continues to shift from the U.S. to South America. Current price relationships suggest that soybean plantings in the United States will increase only 2-3 million acres next year. That's about half as much as the projected 6-million-acre increase in South American soybean plantings.

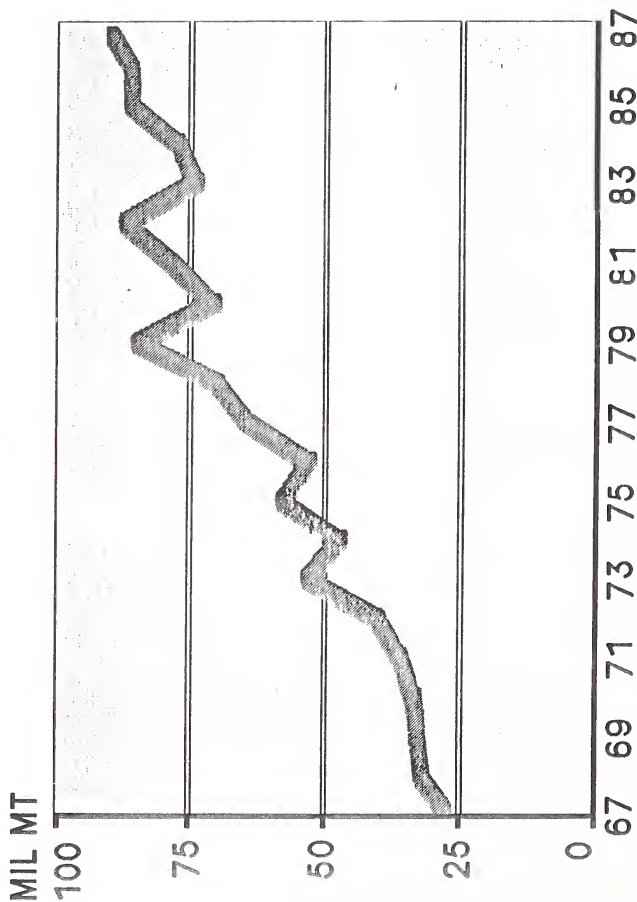
In other words, we will continue to lose ground even with the newly passed soybean planting provisions. Each year that passes without a policy change allowing U.S. soybean farmers to respond freely to market signals is likely to cause further deterioration in the industry's relative position. The recent increase in imports of vegetable oil into the U.S. suggests that the soybean industry may not be able to serve the full needs even of its domestic market.

Prompt action by the administration could still address these problems prior to the 1989 planting season. The administration should utilize its discretionary authority fully in order to provide farmers with genuine planting flexibility in the near term. In addition, annual acreage-idling requirements should be reduced to free up more land for crops like soybeans that are wanted in the marketplace.

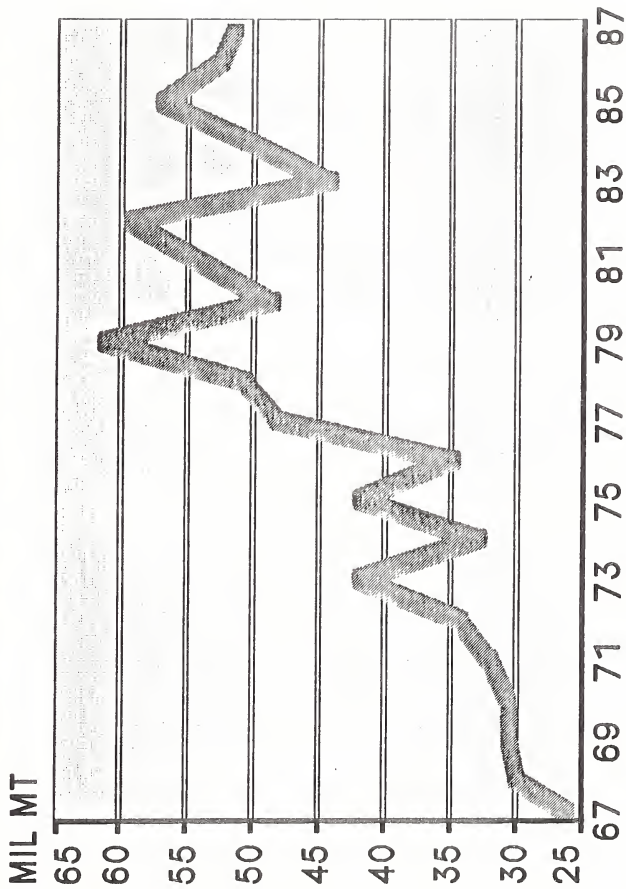
In the longer term, serious consideration should be given to complete decoupling. Breaking the link entirely between government programs and farmers' production decisions would allow market forces to balance supply and demand efficiently. Needed income support could be provided to farmers through direct payments unrelated to whatever crop is planted in the current year.

To conclude, I'm sure that someone in the world will find a profitable way to serve rapidly growing oilseed consumption. I hope it can be us. We have a major role to play if only our policies will allow it.

World Soybean Production more than tripled from 1967-1987

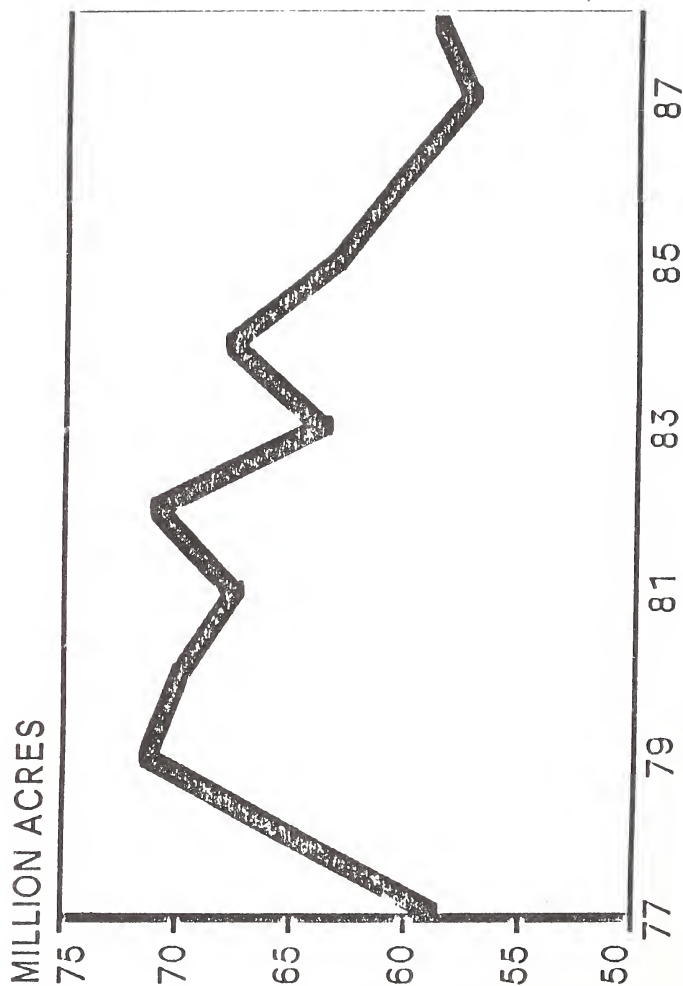


**U.S. Soybean Production
more than doubled from 1967-1979 ...**

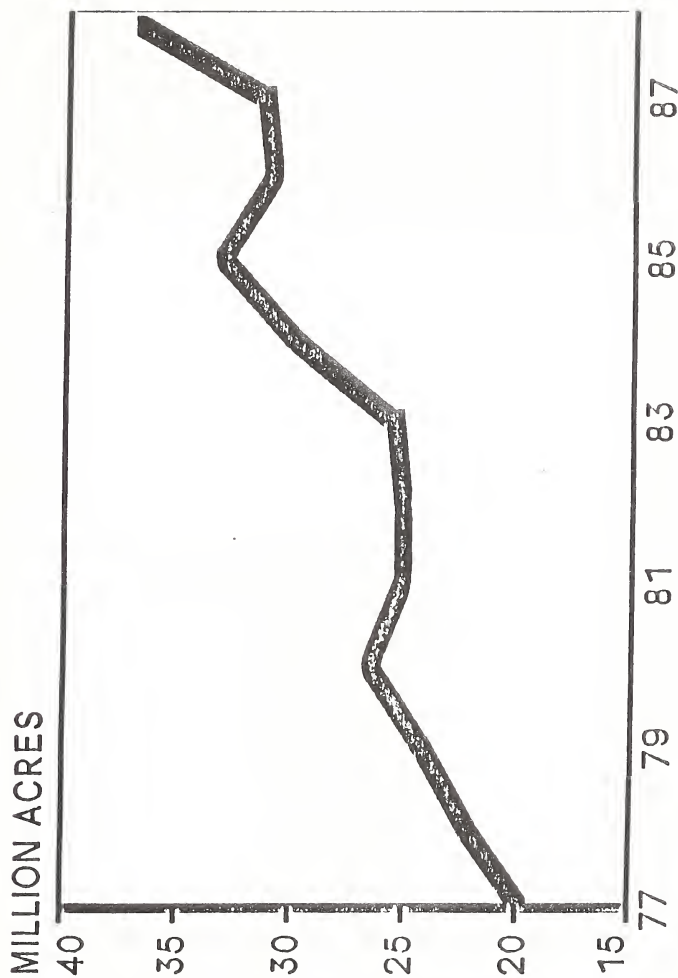


... and has declined since.

U.S. Soybean Acres

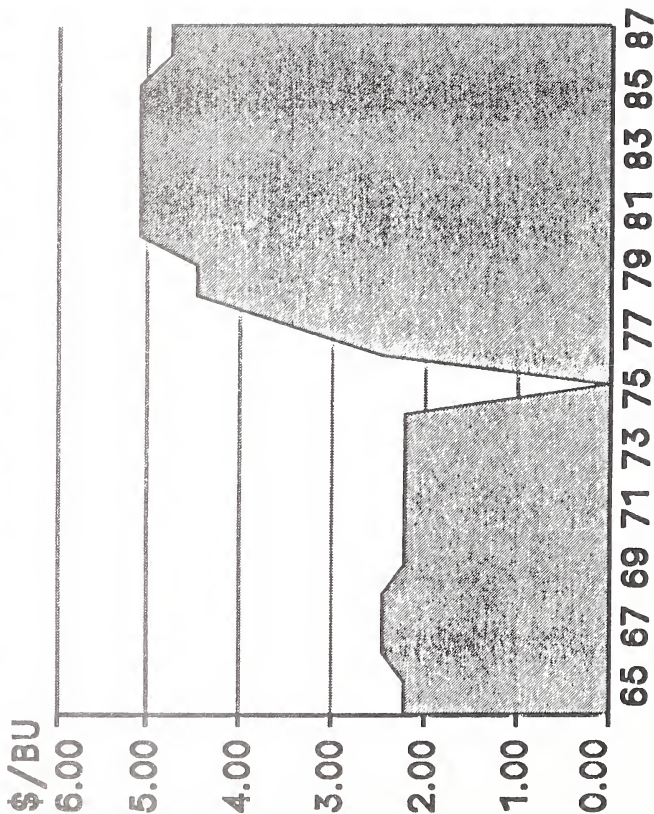


Brazil & Argentina Soybean Acres



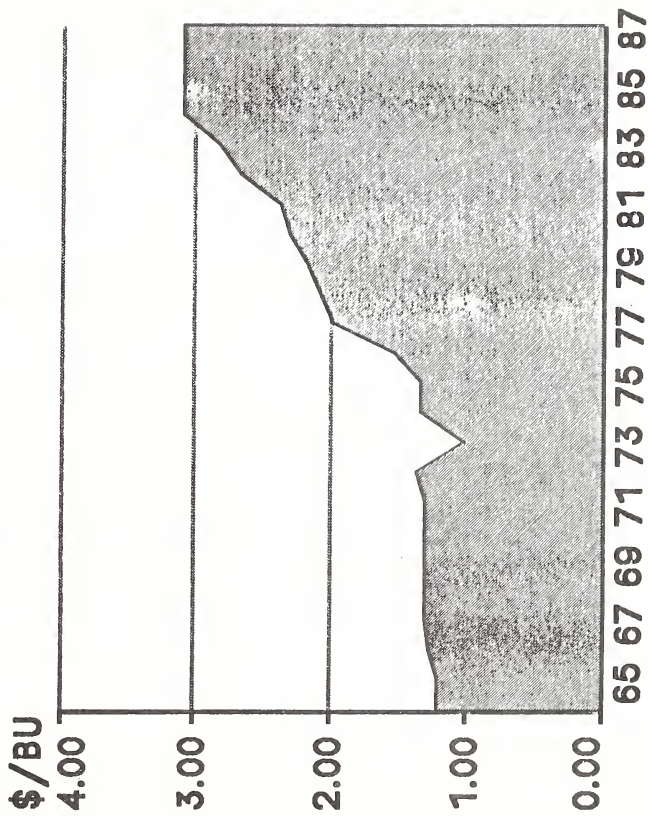
U.S. Soybean Loan Rate

more than doubled in the late 70s



NO LOAN PROGRAM IN 1975

U.S. Corn Target Price also increased significantly



ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

United States Department of Agriculture
Washington, D.C.



Outlook '89, Session #8

For Release: Wednesday, November 30, 1988

U.S. AND WORLD COTTON OUTLOOK

Russell G. Barlowe
Fibers Analyst, World Agricultural Outlook Board, USDA
Washington, D.C.

INTRODUCTION

World cotton supply and demand developments during the 1980's have been highlighted by rather erratic gains in production, steady increases in consumption, and expanding trade. This pattern likely will continue in 1989/90 as we close the final chapter on this decade. Current relatively low cotton prices should encourage larger use and trade while holding production close to this season's level. China is expected to remain the world's number one producer and consumer although its mill use and exports will be limited by tight supplies. In contrast, plentiful stocks in the United States should help boost our 1989/90 exports from the current low level. With smaller acreage and production likely, the 1989/90 U.S. supply-demand balance is expected to show modest improvement.

For the longer term, prospects for global cotton indicate that production and use likely will continue their upward trends. But before delving into the future in greater detail, let's examine the current situation and some of the factors influencing the cotton outlook.

One critical factor is the price of cotton. Global cotton prices have been extremely volatile over the past decade. As measured by the Northern Europe COTLOOK "A" INDEX, prices have generally trended down, ranging from nearly \$1.00 per pound in late 1980 to about 40 cents in the summer of 1986. Prices recovered in 1987, but have declined this year to the current level of less than 60 cents per pound (Figure 1).

This price volatility has been associated with changes in U.S. and world cotton supply and demand. Figure 2 illustrates the close relationship between world prices and the ratio of global stocks to consumption over the past decade. (China is excluded except for net trade.) When the ratio of stocks to use was relatively tight, such as in 1979, 1980, and 1983, prices averaged about 90 cents per pound. At the other extreme, when stocks were relatively plentiful, such as in 1985, prices dropped to about 50 cents per pound. Last season's ratio of about 40 percent was associated with a price of slightly over 70 cents per pound, 16 percent above the previous year. This sharp price increase was a major factor influencing 1988/89 cotton production and consumption.

OUTLOOK FOR 1988/89

World

Largely in response to last season's improved prices and declining stocks, global 1988/89 acreage and production are increasing moderately, consumption is static, and stocks are rebounding modestly from this past summer's 4-year low (Figure 3). Production is forecast at 84 million bales, 3.5 million above 1987/88. Among major foreign producers, production is projected up 22 percent in India and 9 percent in the Soviet Union. India's crop is estimated at a record 8.6 million bales. China remains the world's leading cotton producer with a crop of 19.5 million bales, matching last year's output. The United States and Pakistan harvested large crops again this season.

Global cotton consumption in 1988/89 is projected at a near-record 83 million bales, virtually identical to the past two seasons. Last year's higher cotton prices, among other factors, are limiting larger use in foreign countries this season. Consumption in major foreign importing countries is down slightly. Despite competitive cotton prices, U.S. use is down about 10 percent, reflecting sluggish denim demand and large apparel inventories.

World cotton stocks at the end of the 1988/89 season may total about 33 million bales, 3 percent above the beginning level. A 3-million-bale increase projected for the United States more than offsets a 2-million-bale decline in foreign countries. In comparison with recent years, stocks are projected at particularly low levels in the Soviet Union, Pakistan, and China.

Global cotton trade in 1988/89 is placed at nearly 24 million bales, almost matching last season's level (Figure 4). Foreign exports are offering U.S. cotton stiff competition, with Pakistan and several smaller producing countries benefiting the most. While Soviet exports are expected to duplicate last season's 3.5 million bales, China's exports may drop one-fourth because of reduced supplies.

United States

In the United States, production well in excess of total use and a sharp increase in stocks highlight the 1988/89 cotton outlook. The crop of 14.8 million bales slightly exceeded last season's record-yielding output as larger area offset lower yields. Meanwhile, combined mill use and exports are expected to total nearly 12 million bales, more than 2 million below 1987/88's relatively high level. While mill use is projected down about one-tenth to just under 7 million bales, exports are expected to fall one-fourth to 5 million, with generally noncompetitive U.S. prices playing a major role. Stocks are expected to rise from 5.8 million bales on August 1, 1988--on a par with the 1982-86 average--to 8.8 million next August (Figure 5).

Figure 6 provides a good illustration of the impact of relative prices on cotton export shares. Prior to 1985/86, U.S. prices averaged close to world prices and U.S. exports accounted for about one-third of the market. Noncompetitive U.S. prices in 1985/86 dropped our share to 10 percent. The marketing loan helped make our cotton competitive once more in 1986/87 and 1987/88 and the U.S. share improved to nearly 28 percent. However, with U.S. prices now about 10 percent out of line with world prices, our export share is expected to fall to 21 percent this season. On the brighter side, exports of extra-long staple U.S. cotton are projected at a record 300,000 bales, more than double the 1983-87 average, reflecting large U.S. supplies, strong foreign demand, and reduced competing supplies abroad.

OUTLOOK FOR 1989/90

WORLD

Given the multitude of factors which influence world supply and demand for cotton, there are many unknowns and uncertainties with which to contend as we look ahead. Nevertheless, current economic conditions and policies, along with recent trends, provide some basis for analysis. With this in mind, let's examine some possibilities for global cotton supply and demand in 1989/90.

The world cotton production outlook is extremely uncertain, primarily reflecting the difficulty in projecting highly variable yields. Area devoted to cotton is more stable and is easier to ascertain. If world prices at planting time remain near current levels, that is, about 10 percent below last spring, cotton area likely will decline. Yields, on the other hand, could vary significantly, primarily depending on weather. If yields next season are near trend, production would total close to this season's 84 million bales. However, production could range anywhere from 82 to 87 million bales. While smaller acreage will likely cut U.S. output, China and Pakistan could see larger production next season. A number of other countries may maintain production near 1988/89 levels (Figure 7).

If growth in population and income continue to follow recent trends and cotton prices remain low relative to manmade fibers, world cotton consumption likely will set another record next season, barring a slowdown in economic activity. At a minimum, consumption should match the current season's 83 million bales. Under more favorable economic conditions, global cotton use could expand 2 to 4 million bales, assuming China and major cotton-importing nations show further growth.

World cotton trade in 1989/90 will depend on the level of consumption in importing countries as well as the availability of supplies in exporting countries. Figure 8 shows that imports account for about 30 percent of global use and have increased recently in response to larger use. Imports in 1989/90 should increase if consumption continues to improve. The United States, Pakistan, the Soviet Union, China, and other foreign exporting countries will compete vigorously for these markets.

So, 1989/90 world cotton consumption could exceed production, resulting in a modest drawdown in stocks from the estimated beginning level of 33 million bales. The United States may account for all of the decline. Stocks abroad may change little from the estimated beginning level of 24 million bales, the smallest since 1983/84.

Stocks are expected to remain relatively tight in China and the Soviet Union. China's stocks may equal about one-fourth to one-third of total use, near this season's expected ratio. A continuing close balance between production and use is anticipated next season with output perhaps totaling 20-23 million bales (Figure 9).

In the Soviet Union, stocks at the end of 1989/90 may range from 8-12 percent of total use, near the level of recent years. As with China, a continuing close balance between production and use is expected next season with output possibly totaling slightly above 1988/89's 12.4 million bales (Figure 10).

United States

The early-season outlook for U.S. cotton in 1989/90 points to a modest improvement in the supply-demand balance. This is based on recently announced upland cotton program provisions which will limit planted acreage and hopefully encourage mill use and exports through more competitive prices.

The cotton program provisions stem from the Food Security Act of 1985. For the 1989 upland cotton crop, the Secretary of Agriculture has announced that the maximum 25-percent acreage reduction program will be in effect, double 1988's 12.5 percent. The target price will be 73.4 cents per pound (down 2.5 cents) and the loan rate will be the minimum 50 cents (down 1.8 cents) for base-quality cotton. Marketing loan Plan B will go into effect when the adjusted world price is below the loan rate. Plan B, which is also in effect this season, allows producers to repay price support loans at the lower of the loan rate or the adjusted world price. If the world price is less than 80 percent of the loan rate, or 40 cents per pound for base quality, the law would permit a repayment rate between the world price and 80 percent of the loan rate.

We expect strong participation in the 1989 cotton program, perhaps exceeding this year's 88 percent. The signup period for the upland cotton program runs from December 19, 1988, to April 14, 1989. Participating farmers likely will plant their maximum allowable acreage, which means that plantings next season of all kinds of cotton could total 9.5-10.5 million acres, down from 12.2 million in 1988. Given yield variability, production could range from 11 to 14 million bales. Trend yields would indicate a U.S. crop of about 12.5 million bales, a little over 2 million below this season (Figure 11).

Competitive cotton prices, vis-a-vis manmade fibers, strong consumer demand for cotton products, and strengthening textile activity should spur larger use of cotton by U.S. mills in 1989/90. However, continuing intense competition from textile imports may limit the gain in mill use from this season's anticipated 6.9 million bales.

Despite current legislation designed to make U.S. cotton fully competitive in world markets, U.S. cotton exports recently have fallen on hard times reflecting less-than-desired impact of the legislation and fierce competition from foreign growers. But prospects for 1989/90 are brighter. Assuming U.S. prices are more competitive, U.S. cotton is well positioned to benefit from expected larger world import demand, especially in view of reduced export availabilities overseas. Under these circumstances, the United States should be able to garner a more normal share of world trade, perhaps 25-30 percent, up from 21 percent currently. This would indicate U.S. exports of 6 to 7 million bales, compared with 5 million in 1988/89.

With improved mill use and export prospects, U.S. cotton disappearance next season may exceed output, resulting in a moderate drawdown in stocks. Still, the carryover likely will remain well above the 4-million-bale target specified in current legislation (Figure 12).

OUTLOOK FOR THE 1990'S

Let's now turn our attention to longer-term prospects for global cotton production and consumption. As shown in Figure 13, output and use have increased steadily since the 1950's. Current indications point to a continuation of these upward trends in the 1990's.

In the case of world cotton production, the impetus for larger output will come mainly through increasing yields, as acreage may continue to show little growth, depending on policies in major producing countries as well as the commodity price outlook. Assuming yields continue to trend up at the 3-percent average annual rate of the past decade, production could total 90 to 100 million bales by 1995. China will continue as the world's leading producer, although its future cotton production gains likely will be limited by the desire to improve food crop production.

In the United States, cotton production will continue to respond to market demand within the framework of government policy. Future policy is very uncertain beyond 1990, the last crop subject to the Food Security Act of 1985. For looking at longer-term U.S. production prospects, I have assumed that policies will be aimed at protecting net farm income while continuing to gradually phase back some supports, such as target prices.

A growing and more affluent world population will mean increased fiber demand in the 1990's. If cotton prices remain competitive with manmade fibers, cotton should be able to maintain its current global market share of about 50 percent. This points to cotton use of 90-100 million bales by 1995, 20-33 percent above the average of the 1980's. As with production, China in all likelihood will continue as the world's largest consumer. In the United States, intense competition from textile imports probably will continue to limit growth in mill use to modest proportions.

This scenario of world cotton production about matching or perhaps slightly exceeding consumption during the 1990's implies that stocks will increase slightly. However, while stocks may increase abroad, U.S. stocks may be worked down below the 6-million-bale average of the 1980's.

The tentative U.S. cotton outlook for the next decade points to the potential for larger domestic and export markets. Given this country's vast production potential, which is in marked contrast to that for most of our foreign competitors, U.S. production can easily respond to satisfy these growing markets. So, I'm optimistic that we will remain the world's number one cotton exporter, number two producer, and number three consumer.

In terms of shares of world totals, however, U.S. dominance in the global supply and demand arena could continue to slip. With expanding foreign production and intense competition for world markets, our export share may range from 20 to 30 percent by the mid-1990's, compared with 27 percent in the 1980's and 35 percent in the 1950's. Our shares of global production and consumption also could continue the downward trends of the past 30 years (Figure 14).

In summary, the global cotton outlook for the mid-1990's points to production and consumption in the range of 90 to 100 million bales, with stocks growing modestly in line with textile mill needs. Assuming our prices are more competitive, an improved supply-demand balance is envisioned for the United States although our role as a major producer, consumer, and exporter could continue to decline.

World Cotton Prices

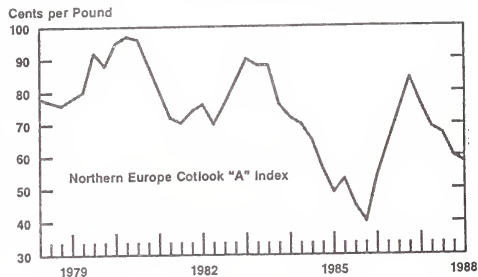
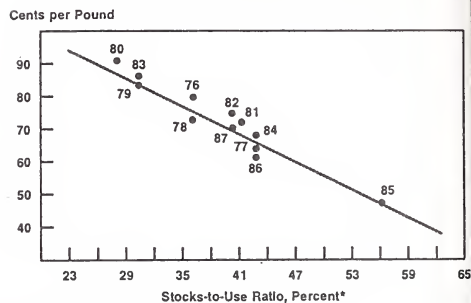


Figure 1

World Cotton Prices and Stocks-to-Use Ratio



*Excludes China, except for net trade

Figure 2

World Cotton Supply and Demand

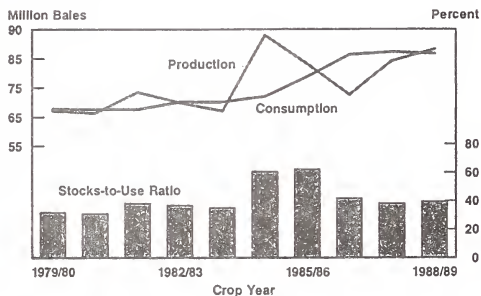


Figure 3

World Cotton Trade

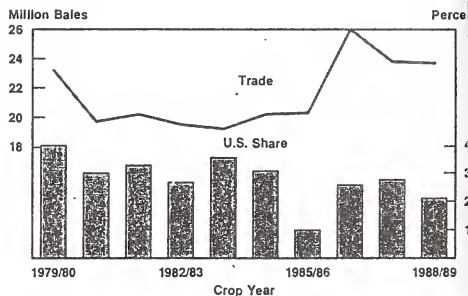


Figure 4

U.S. Cotton Production, Disappearance and Stocks

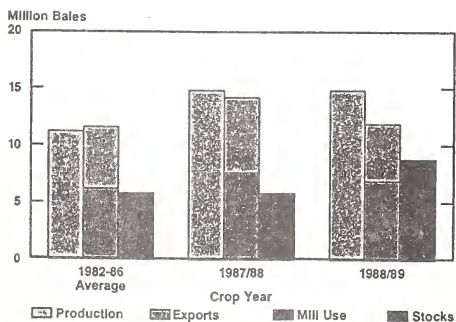
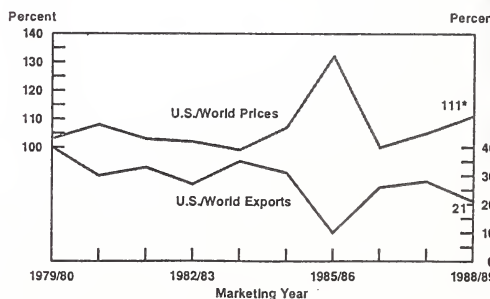


Figure 5

Cotton Price Ratio and U.S. Export Share



*April-September 1988

Figure 6

World Cotton Area, Yield and Production World Cotton Consumption and Imports

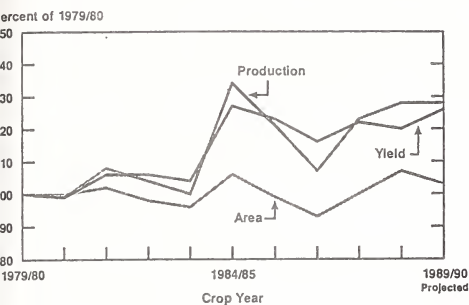


Figure 7

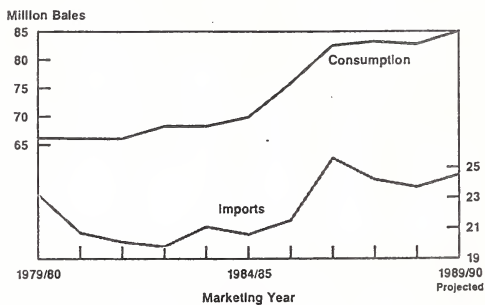


Figure 8

China's Cotton Supply and Demand

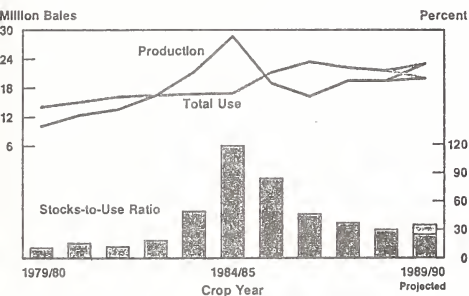


Figure 9

Soviet Cotton Supply and Demand

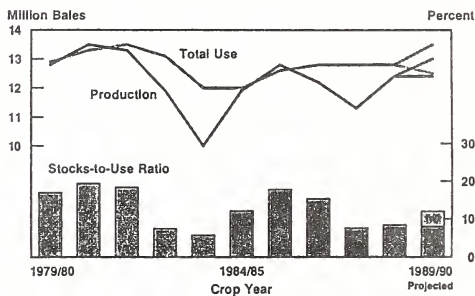


Figure 10

U.S. Cotton Area, Yield and Production

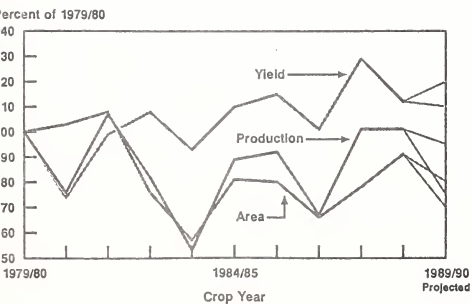


Figure 11

U.S. Cotton Disappearance and Stocks

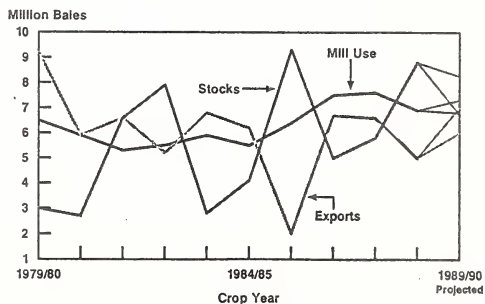


Figure 12

World Cotton Prospects for the 1990's

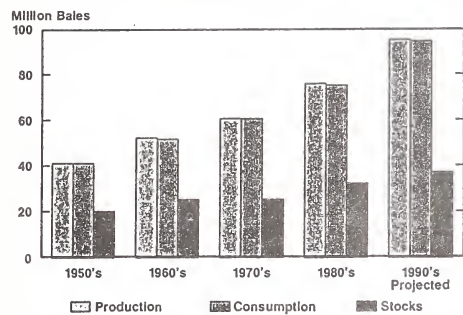


Figure 13

U.S. Share of World Cotton Total

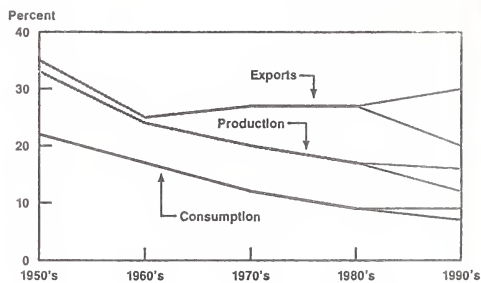


Figure 14

ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

United States Department of Agriculture
Washington, D.C.



Outlook '89, Session # 8 For Release: Wednesday, November 30, 1988

PRICE COMPETITIVENESS ISSUES

John M. Montgomery, Jr.
President, American Cotton Shippers Association

To try to look into the future of cotton in America, we can only look back and ask what has brought us to our present situation with bountiful -- or possibly burdensome -- stocks of quality cotton in this country. Cotton farmers in American have been given a program whereby they can make a profit given normal to good yields, and yet their product can be sold competitively around the world. The word "profit" is the answer to why we have this stock of cotton in the United States. Were it not profitable to produce this cotton, you would see producers cut back their acreage, invest the minimum in production and ginning equipment and start looking for a 50/92 or 0/92 program to survive financially. Yet the very opposite is happening throughout the cotton producing areas of America. Farmers have invested heavily in the latest equipment to increase productivity and efficiency and it is certainly paying off. Wherever you look now in cotton country, you see new four row cotton pickers, cotton caddies to let them empty faster and take the cotton to a module builder and let these expensive harvesting machines stay in the field more of the time instead of going to a trailer or module builder. This, in itself, is a tremendous increase in the efficiency in harvesting. However, I think the most innovative and revolutionary change in cotton production has been the storing of seed cotton in modules. It has enabled the producers to get cotton harvested before it is subjected to a lot of damaging weather and hold it until it can be ginned in an orderly manner. One only has to examine the quality reports from the USDA Classing Office for the past two years and see what a great percentage of the crops have been classed SLM and better with a very high percentage of middling and better. This is not by accident -- or merely because we've had good harvesting weather -- though that may have been helpful. It is because it was harvested sooner and stored and ginned properly. All three of these contribute to the quality of the fiber that we are producing. Cotton stored properly in a module can stay there undamaged until the gin can gin it. This takes a lot of pressure off the gins to gin the cotton that is on trailers that are needed back in the field to keep some other farmer's pickers running. When a ginner is rushed to get the farmer's trailers back to the field, he will naturally gin faster and, to do this he will overdry and over heat the cotton -- and there goes the quality of the fiber. When the quality is diminished, the value is diminished and consequently the profit is

diminished. These simple explanations that I'm giving you may not seem very "earth-shaking" but taken over the entire industry, I think they are. The gins have profited tremendously by being able to extend their ginning season and get so much more use from machinery that, to say the least, is an investment that is used only seasonally. As the gins are usually the marketers of the cottonseed, the price of cottonseed has a great effect upon the profitability of ginning which, in turn, affects the profit to producers since many gins which are farmer-owned or cooperative let producers share in some way in the ginning profits. For a few years, the price of cottonseed was so low that it would hardly pay for the ginning. But, with the drought affecting the price of oilseed, which raises the price of cottonseed, gins should be a profitable investment.

Profitability keeps coming up! Many producers are profiting by participating in the warehousing profit. Many large gins have built warehouses to add to their revenue and with the loan program, and with the possibility of carrying loan stocks for a long time, they are encouraged to store their own cotton.

America's cotton producers are very astute businessmen who know how to maximize profits and take advantage of every part of the programs that are enacted by the Congress.

Now -- where do we go from here? After all, this is the Agricultural Outlook that we are discussing. I think that the cotton farmers of America, with all of the recent investments in production, harvesting, ginning and warehousing that has been made, will continue to plant and produce the maximum allowable within the program. And, should the market rise to a level where outside the program will be profitable, you will see a lot of "wildcat" or "out of the program" cotton planted. Were I a producer contemplating planting out of the program, I would seek at least some price protection from the futures market or a contract from a reliable merchant for a part of my production. After all, the cotton market can be very erratic and a very fickle friend.

With the existing program, producers can obtain an 18 month loan,, which at this time is above the market, and then start getting bids on their equities. These equities vary in price with the Adjusted World Price and the New York market. As long as the 18 month loan is in effect, this will be the marketing situation as I see it. The AWP could go very far down and equities will be more valuable or the New York market could go high and the equities could go higher. So why shouldn't producers hold equities and shop for the best deal. They have an 18 month option at no cost for the premium.

Secretary Lyng has given the cotton industry all that we asked for in letting us redeem cotton at the AWP without carry as long as the AWP is below loan. This should enable us to export and be competitive worldwide if the price of equities can make it profitable. If we were able to export enough to reduce the large impending

carryover or some foreign producers should have production problems, we could see prices that would encourage maximum production. I think efficient producers in every area of the Belt will plant the maximum acreage and use all of their investment in their equipment to achieve a profit in spite of the market at planting time.

Now, let's be honest...farming is dependent on the farm programs...and the farm programs are influenced by politics. I have a friend down in Mississippi who sounded like Vince Lombardi who said that "winning is not the most important thing -- it's the only thing." He said that "politics is not the most important thing -- it's the only thing." Tell me what the lobbyists can achieve for all different farm factions, what Congress will do for various areas and commodities in any new farm programs, then analyze them for any way farmers can profit by them and we can look at the future of American agricultural production.

Since we have seen that farmers can produce tremendous yields given the incentive, the vast acreage that is being set aside each year is indicative of the potential that we have for production of much more fiber than we need domestically and the potential for vast exports should we unleash this sleeping giant of productivity.

However, until the 18 month loan is shortened to 10 or 12 months, or converted to a recourse loan at that time, we will encourage the withholding of cotton from the market which is diametrically opposed to the marketing loan concept of the Food Security Act of 1985. Consequently, we are withholding new crop cotton from the market and the so-called availability at world price is indeed not a fact and we understand that our domestic textile industry is considering a request to permit the import of foreign growth cotton.

The World Price Formula needs to be fine tuned. Liverpool quotes the cotton being offered but not the price at which cotton is actually sold. The World Price Formula does not reflect a true picture because foreign cotton is quoted at a relatively high price, but when the time comes to effectuate sales, business is done at considerably lower prices.

Foreign cotton producers are not convinced of U.S. resolve to sell cotton at world market prices. Until such time as the world cotton producing nations come to believe that we are determined to export our traditional market share, they will not curtail their acreage. The world views the U.S. as a residual exporter of cotton.

We may continue to be viewed in this light until we curtail the holding of loan stocks for such a long period of time.

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ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

United States Department of Agriculture
Washington, D.C.



Outlook '89, Session #9

For release: Wednesday, November 30, 1988

WORLD AND U.S. OUTLOOK FOR SUGAR AND SWEETENERS

John C. Roney

Chairman, Interagency Sugar Estimates Committee
World Agricultural Outlook Board, USDA

Introduction

"The world (or U.S.) sugar industry is at a crossroads." This aphorism could be trotted out at any Outlook Conference and is no less tempting than ever as we look toward 1989 and beyond.

The 1987/88 world sugar campaign that recently ended was one of the most volatile of this decade. Prices this past summer hit their highest level since 1981, five times above their trough in the summer of 1985, yet less than half their peak levels of 1980. But the 3-year price rise has recently stalled. Will the 1988/89 season recharge or sap the strength of the world price climb?

The U.S. sugar industry has seen a production drop, a rebound in consumption, and a national election year deflate some of the pressure that had been mounting on the U.S. sugar price support program. Will supply-demand developments in the coming year help to renew or to further diminish that pressure?

This paper will not attempt to offer definitive answers to these questions. Such an effort would be quixotic, even for the combined wisdom of USDA analysts. I will, however, attempt to discern some trends and developments that could help us to anticipate future directions for the world and U.S. sugar industry.

World Sugar Outlook

The main reason for the 3-year rise in world sugar prices (figure 1) has been a 3-year decline in world sugar stocks (figure 2). Though actual stock levels are a particularly elusive figure to pin down—because so few countries, even among the major producers and consumers, maintain accurate stock data—the downward trend has been clear. The stock-change outlook for 1988/89, however, is shaping up to be a very close call, with consumption forecast to exceed production by a narrow margin.

World sugar production this year is almost unquestionably headed for its third straight record. Our current forecast of 106.8 million metric tons (raw value) is more than 3 percent above last year's mark (table 1). The prospect of production this large would be expected to have a stifling effect on the market, and to some extent it has. After a June-July speculative run-up above 15 cents, New York futures prices have been stuck in the 9-10 cent range since August.

The saving grace for producers has been consumption. Despite the recent gain in world prices--the 1987/88 average was 9.3 cents, compared with 6.3 cents the previous year--consumption, too, is headed for another record. We are forecasting global consumption for 1988/89 at 107.0 million tons, 2 percent above last year.

So, the world sugar situation for the coming year looks to be about in balance, with USDA projecting a slight--less than 1-million-ton--stock drawdown (figure 3).

World Production. A closer look at recent world sugar production gains could help us understand how, and where, they were achieved and provide some clues for the future.

Since the beginning of this decade, world cane sugar production, which generally accounts for just under two thirds of global sugar output, has increased 26 percent, while beet sugar production has risen 15 percent. Both gains are impressive, but they were achieved in completely different ways--beet sugar by yield advances; cane by area expansion. Beet area and cane sugar yields have actually dropped relative to their average 1978/79-80/81 level, but beet sugar yields have risen 17 percent and cane area has expanded by almost a third (table 2, figures 4-6).

Beets are grown in temperate climates, mostly in the Northern Hemisphere, where agricultural systems are relatively mature and capital intensive. Yield gains are the result of research on seed varieties and investment in efficient refining technology. In addition, beet industries in such major producers as the European Community (EC), the United States, the Soviet Union, and Eastern Europe have been shielded from this decade's plunge in world sugar prices by government policies.

Cane is grown in semi-tropical and tropical regions which, with the exception of the U.S., Australia, and South Africa, are less capital intensive and more vulnerable to world sugar price gyrations than beet producers. Almost the entire increase in world cane area occurred in the early 1980's, after prices averaged over 20 cents in 1979/80 and 1980/81. Area has expanded only marginally during the 1980's, and cane sugar yields have failed to reach earlier highs, probably for lack of investment and technological advances.

The greatest potential for wide swings in sugar production are in Brazil and India, the world's two largest cane producers. In Brazil, more than half the available cane is distilled for ethanol; in India, 40-50 percent of the cane is ground into locally consumed non-milled sugars, such as gur and khandsari. High world sugar prices could quickly divert some cane away from ethanol or from the local markets and into milled sugar production and commercial markets.

The biggest stories in world sugar production for 1988/89 are dramatic gains in the EC and India, sizeable increases in Thailand, Cuba, China, and the USSR, and drought-induced losses in the United States, Eastern Europe, and Indonesia (figures 7, 8).

In the EC, excellent weather has facilitated a forecast 9-percent rebound from last year's disappointing harvest to 15.2 million tons of raw sugar. During the 1980's EC beet area has declined 9 percent, while sugar yields per hectare have risen by more than a fifth. Most of that gain occurred in field production of sugarbeets, while recovery rates (the sugar recovered per ton of beets), which were already about the highest in the world, have risen only marginally--about 3 percent. Beet yields in the field have increased 17 percent since the 1978/79-80/81 period, to more than 51 tons per hectare, compared with a world average of 34 tons.

As analysts at Landell Mills Commodities pointed out in a recent report, advances in beet seed research have been substantial and made primarily by private firms with a dependable yearly market for the seeds. Cane seed research has lagged and been performed, if at all, mostly by the experiment stations funded by industry contributions or by governments. With the normal rationing of cane crops and predominance of vegetative reproduction for new plantings, no dependable yearly market for cane seed exists to spur private research on new varieties.

India has increased its centrifugal sugar production by more than half just since 1984/85. This year's production is forecast at a record 10.65 million tons (including about 400,000 tons of khandsari sugar, down from 530,000 tons two years ago). India's cane area for centrifugal sugar has risen by more than 90 percent since 1978/79-80/81, though yields have declined by a tenth. Much of the recent gain in Indian production has been caused by the price-induced diversion to sugar mills of much of the cane that had gone to the production of gur, khandsari, and other non-milled sugars.

Both Brazil and Cuba are expected to harvest crops that are larger than last year's drought-reduced outturns, but still below highs experienced in the early 1980's. Brazil's 1988/89 crop is forecast at 8.7 million tons, 200,000 tons above last year's; Cuba's crop is expected to improve 500,000 tons, to 7.75 million, as a 3-year drought appears to have been broken.

Australian cane had timely rains this year and a record crop of 3.65 million tons is expected. Australia has upped its sugar production about a fifth during the 1980's based on an area expansion of about the same proportion; yields have declined slightly.

Thailand has had tremendous success with cane production, emerging during the 1980's as one of the world's leading exporters. Thailand has more than doubled its sugar production this decade, by way of increases of almost a third in area and nearly two-thirds in yields. Forecast production for 1988/89, at 3.3 million tons, is 600,000 tons above last year's.

The Soviet Union has been another major success story in recent years. This year's production forecast of 10.0 million tons is 440,000 tons above last year's total, which USDA recently revised downward on the basis of recent Soviet statistics. Conditions this past summer were more favorable than the previous year for beet growth, with far more warm, sunny days. Harvest conditions were also good, though freezing temperatures toward the end of the campaign may have reduced sugar yields somewhat.

The Soviets have increased sugar production by almost a fourth during the 1980's, despite a 9-percent drop in area. An increase of more than a third in sugar yields has been accomplished by equal gains in beet yields and recovery rates. The Soviets apparently attribute their field success to improved seeds and "intensive cropping technology"—reportedly applied to about 85 percent of sugarbeet hectareage in 1988, up from 2 percent in 1980—and their sucrose-content gains to improved delivery of beets to the mills.

USDA recently reduced its forecast of Chinese sugar production for 1988/89 by 650,000 tons, to 5.1 million. This is an improvement over last year's disappointing 4.8-million-ton crop, but still well below 1986/87's record 5.8 million.

The Chinese have managed to double their sugar production since the late 1970's, mainly from area expansion. Area devoted to cane has, however declined the past 2 years, despite an increase in producer prices, because cane is still not priced favorably relative to other crops. This year's cane crop was hurt by drought in some areas and flooding in others and is not expected to surpass last year's 4.1 million tons. Beet producers in northern China have expanded acreage, had better weather, and are expecting a record crop of 1.0 million tons.

In the United States, cane sugar output will be about the same as last year's, but drought and disease problems have cut beet production sharply from last year's phenomenal harvest. Still, crop-year 1988/89 total output of 6.1 million metric tons (6.735 million short tons) is the second best of this decade and the third highest ever.

Drought was also the major factor in dropping East European beet sugar production to 5.0 million tons, from 5.6 million last year and 5.9 million in the mid-1980's, and Indonesian cane sugar to 1.8 million tons, from 2.1 million in 1987/88.

World Consumption and Imports. World sugar consumption has grown at a fairly steady pace of about 2 percent per year over the past decade, faltering only during the 1979-80 period when prices averaged 23 cents a pound (figures 3, 9, 10).

The current forecast of 107 million tons for 1988/89 would represent an increase of more than 7 million tons since 1985/86. More than half that increase has occurred in Asia, led by China and India, whose per capita consumption levels remain among the lowest in the world. The sources of their increased sugar intake have varied, however.

India's great recent production success has enabled it to increase consumption while virtually eliminating imports. In fact, India has gone from one of the world's leading sugar importers just 4 years ago, to, potentially, a significant exporter this year (figure 11). Many trade analysts doubt this will actually occur, but strong world sugar prices could induce the Indians to shift some sugar to the export market.

China achieved its consumption gains, despite production problems and sugar rationing, by more than doubling its sugar imports over the past 4 years. China's decisions on sugar imports have been one of the two most important factors in the sugar price rebound of the past several years, and will remain so over the next year or two, at least.

The other key factor has been Soviet consumption and import patterns. The Soviets have increased consumption by about 1 million tons since 1985/86. Despite big production gains, they have also remained the world's largest importer by far, with sometimes surprisingly large purchases from the world market. Cuba normally provides the Soviets three quarters or more of their sugar import needs, but the Cubans' extended drought-related production problems forced the Soviets to look to other suppliers.

An important, if somewhat elusive, factor in anticipating Soviet sugar consumption levels has been the government's anti-alcohol policy. By restricting alcohol production and sales, the policy apparently had the effect of driving up sugar demand for soft drinks and for illegal distilling of alcohol--to the point where sugar rationing, and hoarding, occurred. The policy has recently been acknowledged a failure and is set to be relaxed in 1989, but the effect the relaxation will have on future demand for home brew, and for sugar, is unclear.

South American sugar consumption has also increased about 1 million tons since 1985/86, mainly because of gains in Brazil. Brazil's per capita sugar consumption, one of the highest in the developing world at about 46 kilograms, has been maintained despite Brazil's economic problems mainly by government policies that have kept consumer sugar-price increases below the general rate of inflation.

Sugar consumption has been about flat for the past several years in the developed world. Per capita consumption levels are at about saturation levels and corn sweeteners, where they are permitted, have cut into sugar market shares. The United States has lately experienced a modest upward movement as the decade-long substitution of corn sweeteners for sugar in the beverage industry ran its course; in Japan, that substitution is still occurring and sugar consumption continues to decline. In the EC, which restricts corn sweetener production, sugar consumption has increased only modestly.

Though the EC remains one of the world's largest importers of raw sugar, most of it by special arrangement with the ACP (African, Caribbean, and Pacific) countries, its white sugar sales make it the world's second largest exporter. Policies favoring EC sugarbeet producers transformed the EC in the late 1970's from a large net importer to the world's second leading sugar exporter, behind only Cuba.

World Exports. World sugar exports climbed dramatically during the 1970's and early 1980's on the basis of rising incomes and rising demand for white sugar by the developing world. The oil-exporting countries, with abundant cash reserves but few, if any, sugar refineries, led the charge. The EC, with exports 5 times the level of the second leading whites exporter, Brazil, was well positioned to take advantage of the demand surge. Cuba dominated the raws export market, which grew only modestly during that period (figures 12, 13).

Since 1983/84, world sugar exports have declined fairly steadily--the victim of government policies stressing self-sufficiency in sugar, production gains in some major importing countries--most notably, India-- and reduced income in, and demand from, the oil-exporting nations. Thailand is the one raws exporter that has substantially increased its sales in recent years, taking advantage of the growing Asian market, especially China. Cuba's desire to increase its sales to the Far East has been hampered by its production problems.

The World Sugar Price. Before moving on to a discussion of the direction of world sugar prices, a comment on the much-maligned legitimacy of this price concept.

The world sugar price has been criticized as a world dumping price, not representative of genuine market conditions because of the small share of world production actually traded at that price. Indeed, in the early 1980's, slightly more than half the sugar traded was under preferential arrangements--much of it as a hedge by importers against a repeat of the price spikes that began the decade.

With the lower prices that have dominated since, however, arrangements like those set up by Japan, Australia, Thailand, and others have faded from view, and the preferential share of world exports has slipped to less than a fourth. By our approximation, the only sugar exports above the world price occurring over the 1986/87-88/89 period have been, on average: the USSR from Cuba, 3.8 million tons; the EC from the ACP nations, 1.4 million; and the U.S. quota, 1.2 million. Total world exports have averaged about 27 million tons for this period.

The share of world sugar production traded at the world price, at about one-fifth, is well below that for cotton (figure 14). However, since sugar's share is not much below those of wheat and soybeans, and above that for corn, suggestions of the world sugar price's illegitimacy may be exaggerated, at least relative to other major commodity markets.

Price Outlook. By USDA calculations, the world sugar stocks-to-use ratio is projected to slip below 20 percent in 1988/89 for the first time since 1980/81. F.O. Licht is forecasting a similar scenario, with the 1988/89 ratio below 30 percent for the first time since 1980/81. (USDA estimates stocks in each country at their lowest point in their marketing year; Licht estimates August-31 stocks.) The world sugar price averaged 23 cents in 1980/81 (figures 15, 16).

Structural changes in the market over the past decade, however, suggest the relationship between the stock/use ratio and prices may have shifted. Sugar consumers are unlikely to bid the price of sugar up to previous highs because of factors such as lower revenues in oil-exporting countries, severe debt problems in other sugar-importing developing countries, and reduced sugar imports and increased availability of alternative sweeteners, mainly corn fructose, in developed countries.

Nonetheless, some modest upward movement from the recent world price range of 9-11 cents can be expected in 1988/89 if current supply-demand forecasts hold true. With the 1988/89 world beet crop about made, the developments that could push world prices to higher levels would be weather problems in a major cane-producing area, a surge in buying by China or the USSR, or confirmation of reports that Cuba is heavily overcommitted in its export promises for the coming year. If, on the other hand, current production forecasts prove to be conservative and Soviet or Chinese buying fails to duplicate previous levels, prices may be hard pressed to break out of their recent range.

The longer-term outlook would appear to be relatively stable. Prices in a 10-12 cent range would probably neither encourage a great deal of investment in expanding production, nor discourage continued modest consumption gains. Prices much higher could bring a swift production response from Brazil, India, or the EC and could choke off import expansion by China and others. Prices much lower seem unlikely to occur, given recent world sugar stock declines.

U.S. Sweetener Outlook

Two years ago the U.S. sugar price-support import-quota system appeared doomed: declining consumption and rapidly increasing production were portending the elimination within a few years of the need for imports, and with it the supply control mechanism on which the price support program is structured.

The outlook changed last year with the realization that the 10-year slide in U.S. sugar consumption had finally come to an end. Deliveries of sugar to the U.S. industry rose 5 percent in calendar 1987, and another 2-percent increase was predicted for 1988. Then, 1988 brought the drought and the prospect that U.S. sugar production in 1988/89 would be sharply curtailed. From a supply-demand point of view, the import quota program seemed out of danger (figures 17-19).

The production drop has materialized, with an 8-percent decline forecast for 1988/89. Recent statistics indicate, however, that hints of a resurgence in the U.S. sugar industry may have been premature: 1988 deliveries have not reached predicted levels and predictions for future use may need to be scaled back.

U.S. Sugar Production. Between 1982/83—the year import quotas were first imposed—and 1987/88, U.S. sugar production rose by a fourth, with beet sugar output up 44 percent and cane sugar 9 percent. The increase was achieved by area expansion and improved sucrose recovery rates, while beet and cane yields in the field actually declined somewhat (figures 20-23).

Beet area rose 22 percent during that 5-year period, led by producers in the Red River Valley and Michigan. Cane area rose 11 percent, as Florida and Louisiana more than compensated for a decline in Hawaii. Research on improved seed varieties and milling technology paid off, with recovery rate increases of 8 percent for beets and 4 percent for cane; both industries achieved record rates in 1987/88.

Beet area expanded another 4 percent this year and cane area another 2 percent. But drought in the Red River Valley and disease problems in California were key factors in reducing beet sugar production for crop year 1988/89 to a forecast 3.40 million short tons, from a near-record 3.95 million last year. Cane sugar production is expected to remain at last year's record level of 3.33 million tons. These forecasts are 25,000 and 40,000 tons, respectively, below USDA's September assessment. (Table 1 provides fiscal year production estimates.)

When one considers the potential for further expansion in beet or cane area, a look at their returns relative to other crops might prove useful. No comparative measures of crop returns can be regarded as entirely fair or accurate, because of the basic complexity of the measure and the widely varying economic situations among crops, farmers, and regions.

Figure 24 provides one view of the comparative situation for several crops, measuring net cash returns to producers exclusive of such economic costs as land, unpaid labor, and potential returns to operating capital and non-land capital, such as machinery. I have included direct government payments in this measure, to reflect the fact that farmers who receive them benefit from government intervention, though in a different manner than cane or beet producers.

The data suggest that, as producers assess immediate year-to-year cash returns for various crops, sugarbeets and sugarcane remain an attractive choice relative to the other program crops shown. The impressive net returns to beet and cane producers also reflect their success in keeping costs under control and, for 1987, unusually high yields and recovery rates.

The measure USDA presented at this Conference a year ago included the economic costs mentioned above, for a longer range type of view that would reflect more of producers' overall economic status and would supply a somewhat different picture (figure 25). Cane net returns plunge to the negative, reflecting mainly the high land values in Hawaii and Florida. Beet, rice, and cotton returns stay comfortably on the positive side of the ledger. Wheat, corn, and soybean returns hover around zero, but producers of these crops do have marketing alternatives, such as livestock feeding and futures hedging, that are unavailable to cane and beet producers.

U.S. Sugar Deliveries. The loss of sugar's dominance in the U.S. sweetener market is well documented (figure 26). The key question now is whether sugar can maintain a share that has leveled off in the past 3 years, and whether the recent modest upturn in per capita consumption can be continued.

Recently released statistics for the third quarter of 1988 suggest that the pace of sugar's recovery in the U.S. sweetener market has slowed from earlier expectations. Fiscal 1987/88 deliveries proved to be 8.19 million short tons, compared with USDA's September forecast of 8.25 million, and less than 2 percent above the previous year. USDA has revised its calendar 1988 deliveries forecast to 8.215 million tons from its previous 8.30 million, only 0.6 percent above 1987.

The new figures did confirm that one structural change in the U.S. sugar industry has persisted--the shift from cane to beet sugar. Fiscal 1987/88 deliveries of beet sugar rose another 12 percent, while cane sugar deliveries dropped 6 percent. In 1982/83, cane sugar accounted for more than two-thirds of U.S. sugar deliveries; it now accounts for only slightly more than half. The restriction of raw cane imports under the quota program and beet sugar's attractive pricing, even to markets in the eastern U.S., are the main factors behind the shift. Merrill Bateman, in the paper he presented at this Conference last year, addressed this structural change in the market in some detail.

USDA has reduced its forecast of fiscal 1988/89 deliveries to 8.275 million tons, from 8.35 million earlier--a 1-percent increase over the year just ended. Deliveries for a number of use categories have tailed off from earlier expectations. Disaggregation of U.S. sugar deliveries data by type of use is one way to get a better idea of where the changes are occurring and what directions lie ahead.

Figure 27 reveals that non-industrial use--direct consumption of sugar by consumers--has declined very little over the years, while sugar consumed in products (industrial use) nosedived until 1987. A breakdown of non-industrial use shows that, while deliveries of sugar to retailers have continued to decline, deliveries to wholesalers have been on the rebound since 1984 (figure 28). This reflects, for the most part, increased amounts of sugar used by the restaurant trade and by small bakers and confectioners who buy wholesale rather than directly from refiners.

Figure 29 separates sugar product use by food and beverages, and reveals an interesting point. While the rebound in total sugar deliveries did not occur until 1987, a turnaround in food-product use of sugar--the largest deliveries category--had actually begun back in 1983. This turnaround was masked by the continued replacement of sugar with corn sweeteners in the soft drink industry.

A 7-percent increase in deliveries for food use in 1987, to 4.0 million short tons (refined), fanned optimism for future food use. Recent statistics, however, suggest a decline in food use this year, to 3.9 million tons. Among the food categories (figure 30), only deliveries for bakery and cereal use appear to be continuing their expansion in 1988. Deliveries for confectionary products, which had been showing some strength, apparently have faltered this year. Losses in the processed category reflect the continued substitution of corn sweeteners for sugar in the production of canned and frozen fruits, jams, and jellies.

Both the bakery and confectionary categories are at, or near, alltime highs and should be able to continue to grow with U.S. population gains. Whether those uses can attain a higher rate remains to be seen. Alternative sweeteners have not yet been able to withstand heat or provide bulk the way that sugar does. But further technological advances could affect even these bastions for sugar.

Corn Sweeteners. The corn sweetener share of the U.S. caloric sweetener market rose from less than a fifth in the early 1970's to more than half in 1985. During that period U.S. consumption of high-fructose corn syrup (HFCS) was growing at a rate close to 10 percent per year. The rate of growth has slowed since, to about 3 percent, with the completion of the substitution of corn sweeteners for sugar in the U.S. soft drink industry. Corn sweeteners' price competitiveness relative to sugar has been the key factor in its demand growth and will remain so in the future.

The drought this past summer dropped U.S. corn production by a third from 1986/87's crop, and raised corn prices considerably—from \$1.88 per bushel in the first quarter of 1988 to a July average of \$2.86 (#2 yellow, Central Illinois). Prices have since faded to around \$2.50. Prices for the byproducts of the wet milling process—corn oil and corn gluten feed and meal—have not increased as rapidly as corn prices. As a result, the net corn costs to wet millers have risen—from 41 cents per bushel in the first quarter of 1988 to \$1.13 in the third.

Despite the rise in costs, HFCS prices have remained at a discount to sugar. HFCS-55, for example, sold for an average of 14.4 cents per pound in the Chicago-West market during the first quarter of 1988, compared to refined beet sugar at 22.9 cents. In the third quarter, HFCS-55 climbed to 23.7 cents, but was still below sugar's 27.4 cents. Even when corn prices averaged \$3.16 a bushel in 1984, following the 1983 drought, the HFCS-55 average price of 22.7 cents was 3 cents below the refined beet sugar average for the year.

U.S. consumption of HFCS for 1988 will probably surpass 6 million tons (dry basis) for the first time, up from 5.77 million in 1987. Disappearance has exceeded earlier expectations, probably because of increased consumption of HFCS-sweetened soft drinks during the long, hot summer. Over 70 percent of HFCS shipments now go to the beverage industry, up from 40 percent a decade ago. Another 3-percent increase in HFCS consumption appears likely for 1989.

If the corn sweetener industry has the potential for further inroads into sugar's share of the U.S. sweetener market, many trade analysts suggest that would come from crystalline fructose. This product is currently produced by two corn refining companies and recent technical innovations have facilitated a drop in prices to 35-40 cents per pound, wholesale, from 75-85 cents in the mid-1980's. Crystalline fructose is sweeter than sugar, but its hygroscopic quality (absorbs moisture from the air) has, so far, limited its uses.

Spokespersons for the companies that produce it say crystalline fructose's market potential is restricted to special uses and that total production for the U.S. market will not exceed 50,000-100,000 tons annually, even by 1992. There may, however, be more potential in export markets.

HFCS consumption in the United States may increase modestly over the next several years, to about 6.5 million tons around 1992. The only major threat to growth in HFCS use would be from the low-calorie sweeteners and that industry's quest to increase its share of the soft drink market.

Low-Calorie Sweeteners. U.S. consumption of low-calorie sweeteners has grown enormously in the past decade. Though statistics are hard to come by, it would appear that per capita use has about tripled, propelling the low-calorie share of the U.S. market to 12-14 percent, from 5 percent in the late 1970's. There are three low-calorie sweeteners currently approved by the Food and Drug Administration (FDA) for use in the United States: aspartame, saccharin, and, recently, acesulfame-K.

Aspartame has dominated the low-calorie market since 1985, with a current market share around 70 percent. It is about 200 times sweeter than sucrose. Aspartame was approved for uses such as chewing gum and puddings in 1981 and for carbonated beverages in 1983, after about a 10-year approval process. It is in the soft drink industry that aspartame has enjoyed its greatest growth. In 1986, the FDA approved aspartame use in number of other types of beverages, and last June expanded its list to include other products such as frozen desserts, yogurt, and wine coolers.

Saccharin is roughly 200 times sweeter than sucrose and its use has been about steady since 1985. Acesulfame-K was just cleared by the FDA last July. It is about 150 times sweeter than sucrose and was okayed for uses such as sugar substitute in tabletop-packet size, chewing gum, and dry bases for beverages, gelatins, and puddings.

Three low-calorie sweeteners currently have petitions for approval on file with the FDA: alitame (2,000 times sweeter than sucrose); sucralose (600 times sweeter); and cyclamate (30 times sweeter). These products could be approved and in the marketplace sometime within the next decade.

Of note on the longer-range horizon is lev-o-cal--the so-called left-handed sugar that has all the sweetness and functional characteristics of sugar but is not metabolized, and so is effectively non-caloric.

It is the lack of the functional characteristics of sugar that is the major limiting factor in the future use of the high-intensity sweeteners. Because they are so sweet they do not provide the bulk that sugar does, and, they tend not to be able to withstand heat. Efforts to overcome the bulking problem revolve around the use of high-intensity sweeteners with other sweeteners. The solution to the heat problem may be within reach: the NutraSweet Company, the only U.S. producer of aspartame, has petitioned the FDA for approval of an encapsulation process that would make aspartame usable in baked products.

A key development in the future for low-calorie sweeteners will occur in 1992 when NutraSweet's patent on aspartame production runs out. The price for aspartame will drop and competition will intensify. Actual cost data are unavailable, but industry analysts suggest that the price of aspartame could drop from current levels around 30 cents per pound (sugar equivalent) to production costs--perhaps as low as 10 cents.

At such a low price, aspartame could compete with caloric sweeteners on a cost, rather than calorie basis. The HFCS share of the beverage market could be the most vulnerable. The lower price would, however, probably discourage other alternative sweeteners from taking on the lengthy, and costly, approval process that aspartame endured.

Table 1. World and U.S. Sugar (raw value)

World (marketing year)	1987/88		1988/89	
	Sept.	Nov.	Sept.	Nov.
--1,000 metric tons--				
Production	103,803	103,545	107,118	106,849
Consumption	104,824	105,101	106,830	106,962
Exports	27,721	27,593	27,926	28,244
Foreign				
Ending Stocks*	23,021	20,162	22,466	19,613
U.S. (fiscal year)	--1,000 short tons--			
Production	7,185	7,149	7,000	6,915
Beet Sugar	3,825	3,821	3,625	3,600
Cane Sugar	3,360	3,328	3,375	3,375
Deliveries	8,250	8,193	8,350	8,275
Quota Imports*	996	887	---	---
Ending Stocks*	1,503	1,316	---	---

*U.S. import and ending stock forecasts for 1988/89 cannot be published until after the mid-December import quota announcement.

Table 2. Sources of World Raw Sugar Production Gains

<u>Beet Sugar</u>								
	: World	: EC	: USSR	: Eastern Europe*	: U.S.*			
Production	:	:	:	:	:			
	:	:--1,000 metric tons--	:	:	:			
1978/79-80/81 Avg.	: 34,064	: 13,932	: 8,151	: 5,152	: 2,817			
1988/89	: 39,095	: 15,226	: 10,000	: 5,495	: 3,258			
Change	: +14.8%	: +11.0%	: +22.7%	: +6.7%	: +15.7%			
Area	:	:	:	:	:			
	:	:--1,000 hectares--	:	:	:			
1978/79-80/81 Avg.	: 8,852	: 2,001	: 3,737	: 1,515	: 482			
1988/89	: 8,682	: 1,817	: 3,375	: 1,410	: 505			
Change	: -1.9%	: -9.2%	: -9.7%	: -6.9%	: +4.8%			
Yield	:	:	:	:	:			
	:	--tons (raw value) per harvested hectares--	:	:	:			
1978/79-80/81 Avg.	: 3.85	: 6.96	: 2.18	: 3.40	: 5.84			
1988/89	: 4.50	: 8.38	: 2.96	: 3.90	: 6.45			
Change	: +16.9%	: +20.4%	: +35.8%	: +14.7%	: +10.4%			

<u>Cane Sugar</u>								
	: World	: India	: Brazil	: Cuba	: China	: Australia	: Thailand	: U.S.
Production	:	:	:	:	:	:	:	:
	:	:	:--1,000 metric tons--	:	:	:	:	:
1978/79-80/81 Avg.	: 53,594	: 6,261	: 7,759	: 7,459	: 2,233	: 3,056	: 1,541	: 2,458
1988/89	: 67,754	: 10,650	: 8,700	: 7,750	: 4,100	: 3,650	: 3,300	: 3,025
Change	: +26.4%	: +70.1%	: +12.1%	: +3.9%	: +83.6%	: +19.4%	: +114.1%	: +23.1%
Area	:	:	:	:	:	:	:	:
	:	:	:--1,000 hectares--	:	:	:	:	:
1978/79-80/81 Avg.	: 9,710	: 1,661	: 1,500	: 1,304	: 513	: 269	: 471	: 278
1988/89	: 12,870	: 3,200	: 1,950	: 1,350	: 850	: 330	: 620	: 322
Change	: +32.5%	: +92.7%	: +30.0%	: +3.5%	: +65.7%	: +22.7%	: +31.6%	: +15.8%
Yield	:	:	:	:	:	:	:	:
	:	:	--tons (raw value) per harvested hectares--	:	:	:	:	:
1978/79-80/81 Avg.	: 5.56	: 3.77	: 5.17	: 5.72	: 4.35	: 11.36	: 3.27	: 8.84
1988/89	: 5.26	: 3.33	: 4.46	: 5.74	: 4.82	: 11.06	: 5.32	: 9.39
Change	: -5.4%	: -11.7%	: -13.7%	: +0.3%	: +10.8%	: -2.6%	: +62.7%	: +6.2%

*To help compensate for the anomaly of the 1988 drought, 1986/87-88/89 averages were used in place of 1988/89.

World Raw Sugar Price #11, Monthly Average

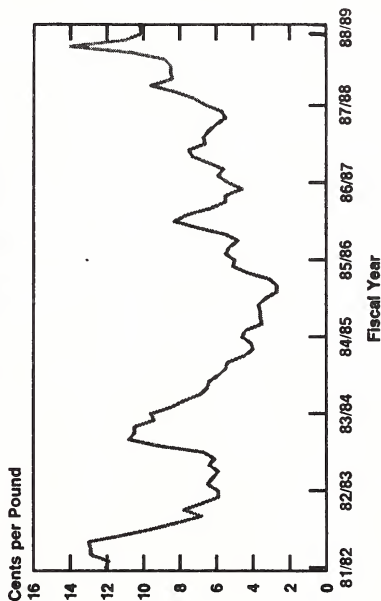


Figure 1

World Sugar Production and Consumption

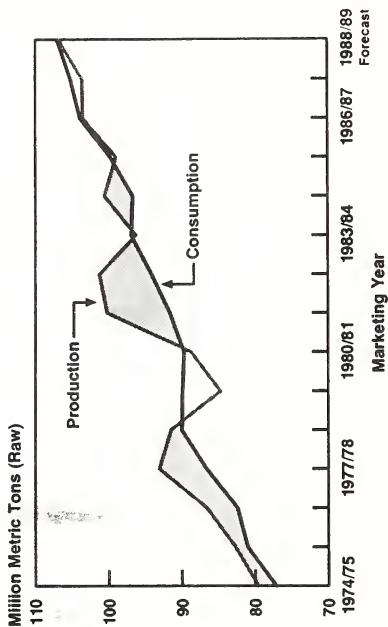


Figure 3

World Sugar Ending Stocks

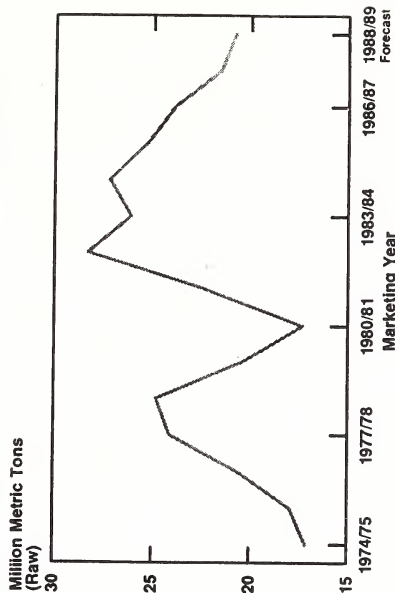


Figure 2

World Sugar Production

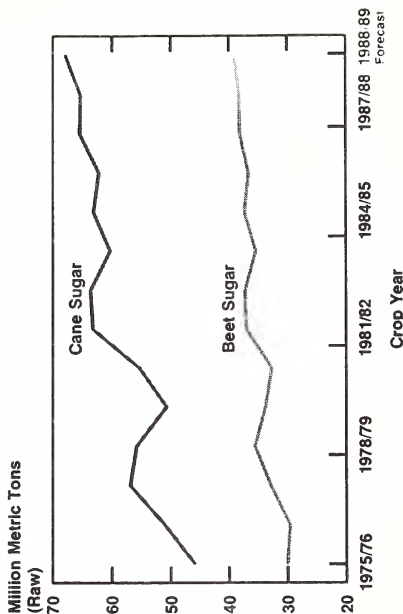


Figure 4

World Sugar Area

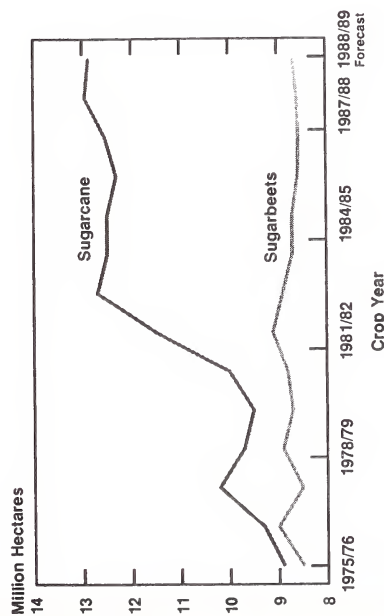
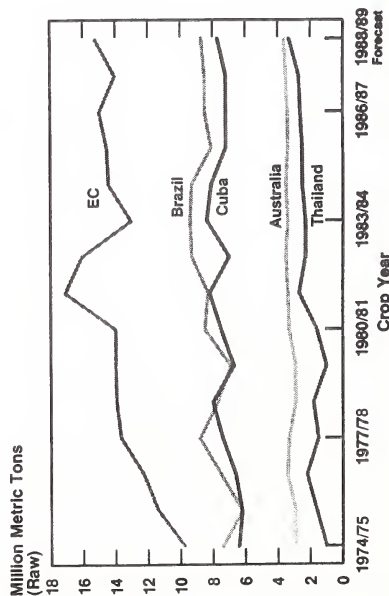


Figure 5

Sugar Production: Major Exporters



World Sugar Yields

Raw Sugar per Harvested Hectare

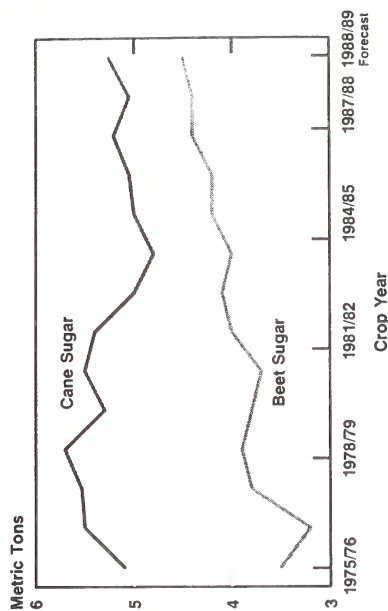
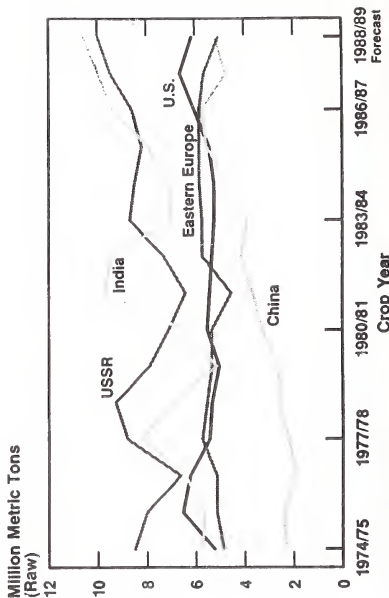


Figure 6

Sugar Production: Major Importers



Sugar Consumption by Major Importers

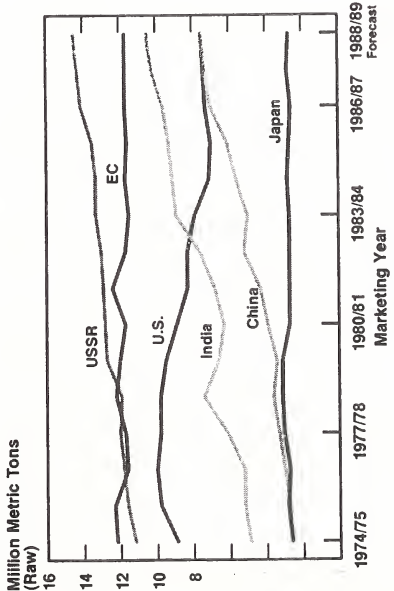
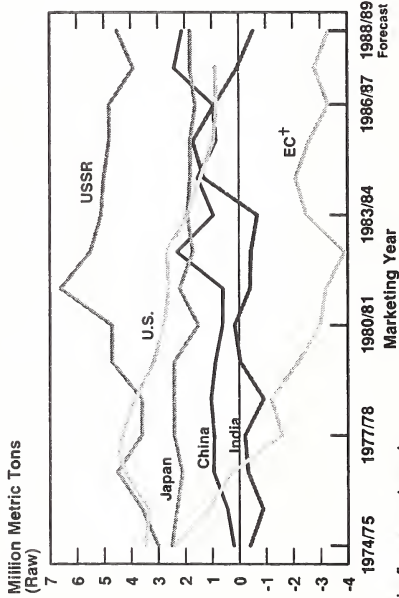


Figure 9

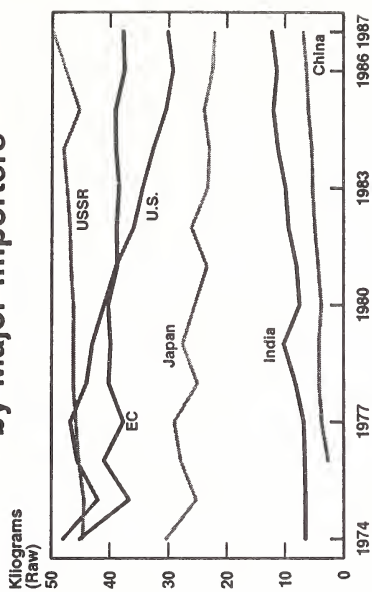
Net Sugar Imports* by Major Importers



* Negative figures = net exports.
+ EC Includes Intra-EC trade

Figure 11

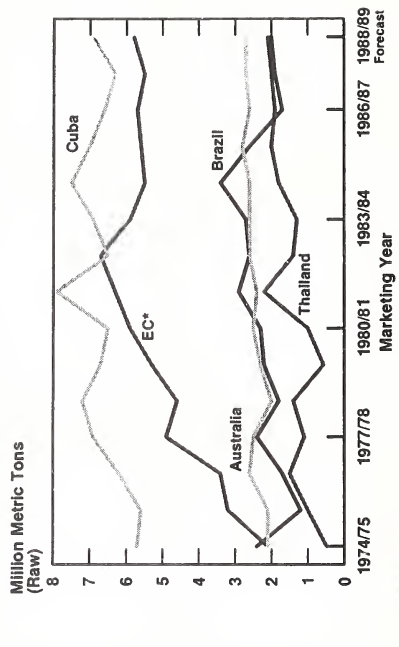
Per Capita Sugar Consumption by Major Importers



Source: International Sugar Organization

Figure 10

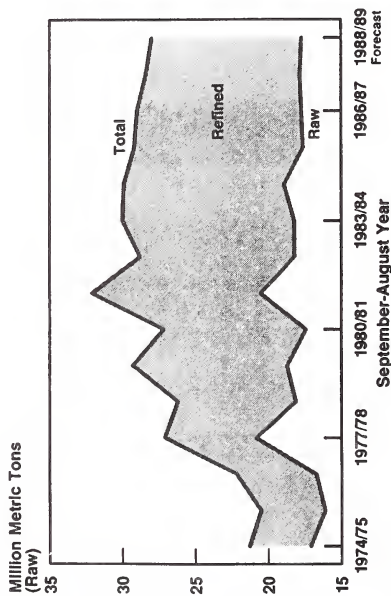
Sugar Exports by Major Exporters



* Includes Intra-EC trade

Figure 12

World Sugar Exports



Source: F.O. Licht

180

World Exports as Share of Production 1986/87-88/89 Average

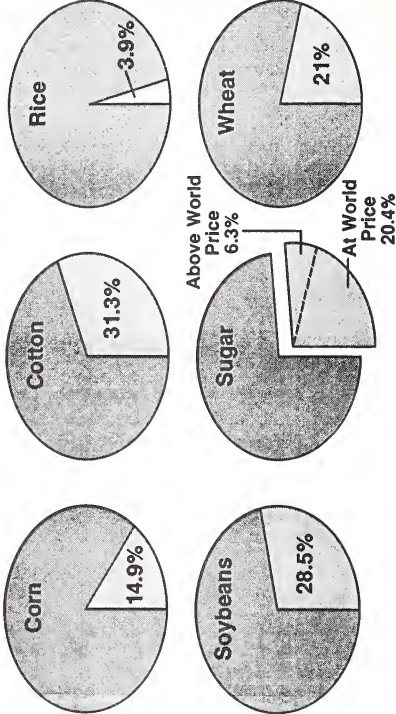
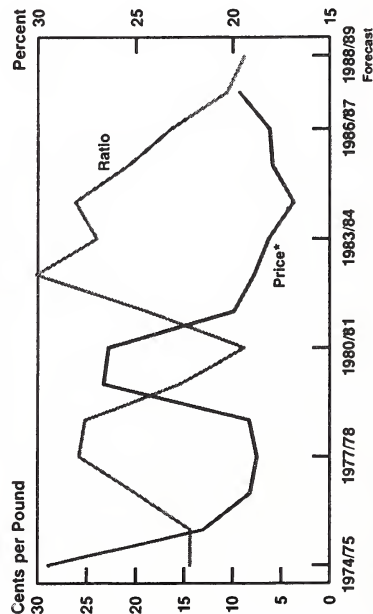


Figure 14

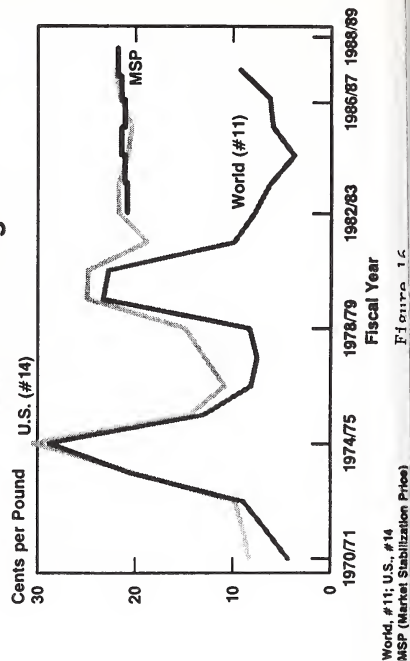
World Sugar Price and Stocks/Use Ratio



*Annual average, #11 contract

Figure 15

World and U.S. Sugar Prices Annual Averages



World, #11; U.S., #14
MSP (Market Stabilization Price)

Figure 16

Consumption and Imports

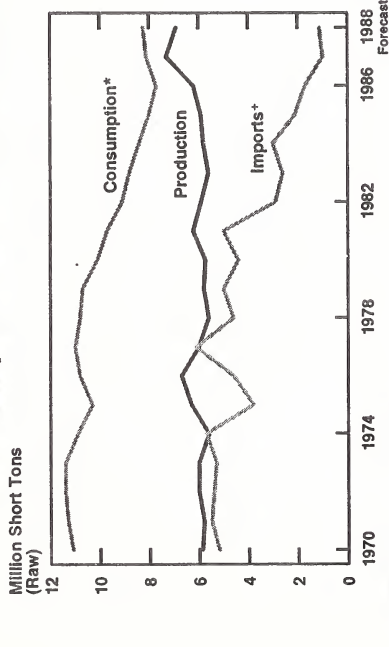


Figure 17

U.S. Sugar Deliveries

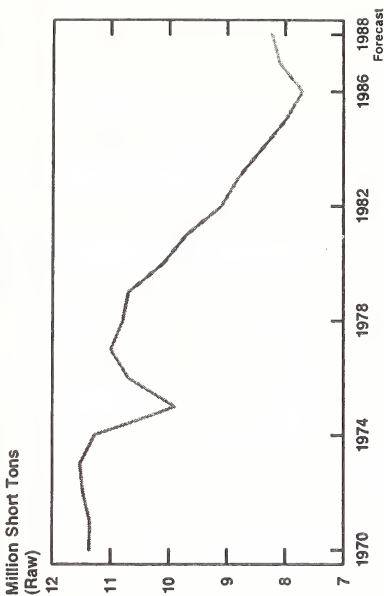


Figure 18

U.S. Sugar Imports

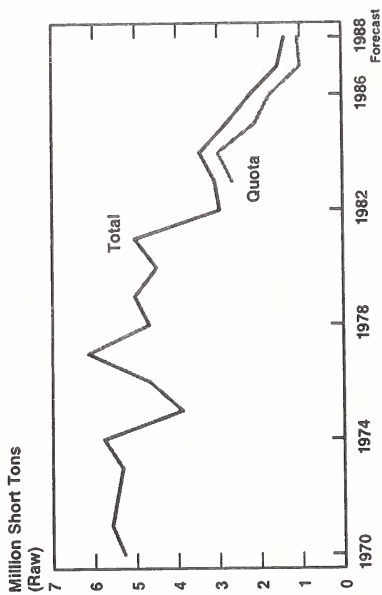


Figure 19

U.S. Raw Sugar Production

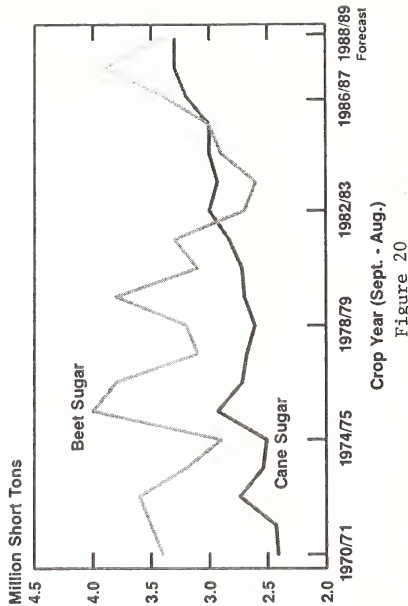


Figure 20

U.S. Sugar Harvested Area Percent of 1970/71-72/73 Average

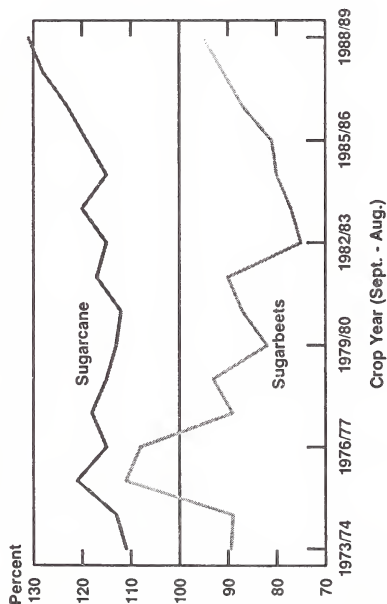
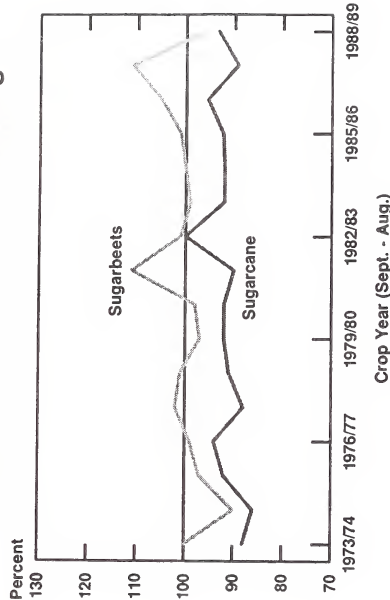
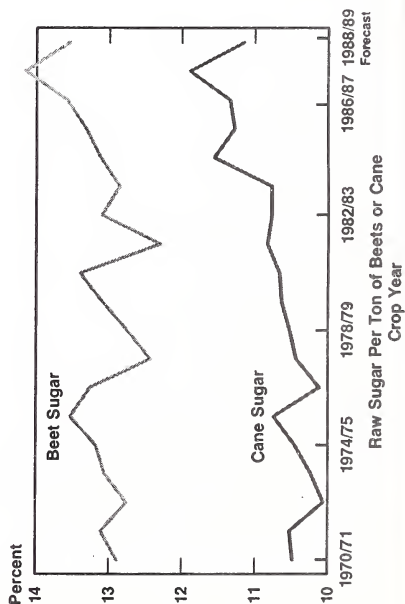


Figure 21

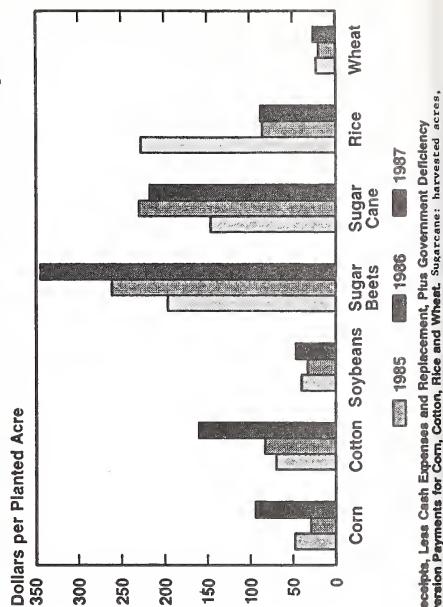
U.S. Sugarbeet and Sugarcane Yields Percent of 1970/71-72/73 Average



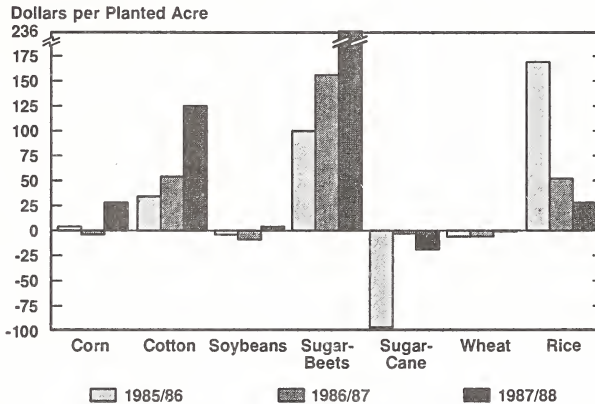
U.S. Beet and Cane Sugar Recovery Rates



Net Cash Returns for U.S. Crops*



U.S. Crop Returns to Management and Risk Including Government Payments



Sugarcane: harvested acres, not including interest expenses.

Figure 25

U.S. Per Capita Sweetener Consumption

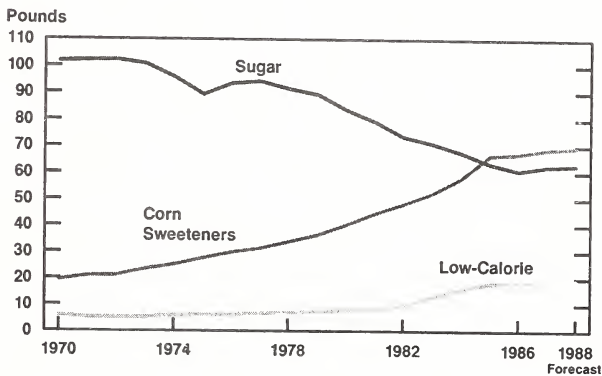


Figure 26

U.S. Sugar Deliveries by User

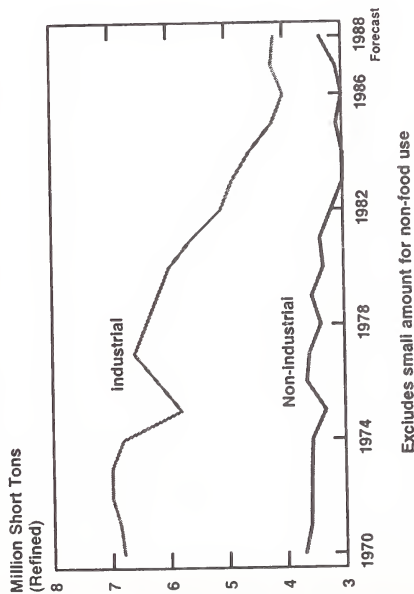


Figure 27

U.S. Sugar Deliveries to Non-Industrial Users

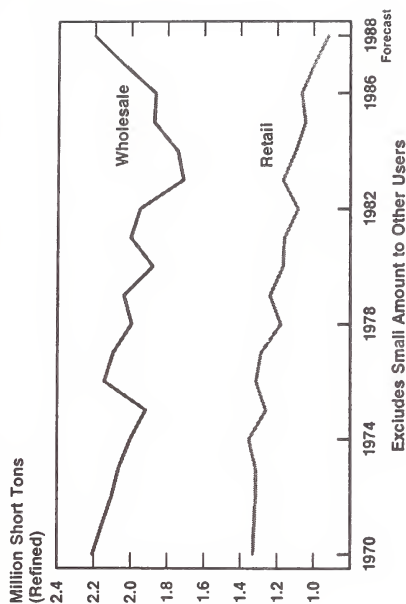
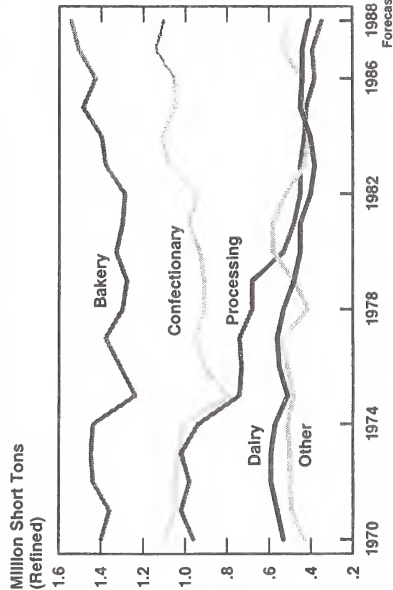
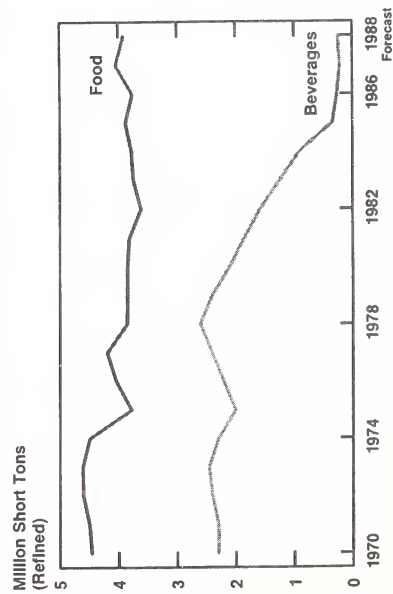


Figure 28

U.S. Sugar Deliveries for Industrial Use U.S. Sugar Deliveries by Type of Food Use



ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

United States Department of Agriculture
Washington, D.C.



Outlook '89, Session #9

For Release: (Wednesday, November 30, 1988)

SWEETENER OUTLOOK, INDUSTRY REACTION

William A. Cromarty
Vice President, Sparks Commodities

DOMESTIC SUGAR

Production Outlook

The USDA November production estimates for sugar beets and sugar cane caused little change in our forecasts for domestic sugar production.

Domestic cane sugar production is forecast at 3,380,000 tons raw value. The Hawaiian number at 980,000 tons, is slightly less than earlier trade estimates and would about equal the 1988 production level. Unless weather problems develop in December or January we look for Florida production to reach a new record of 1,550,000 tons. Louisiana prospects are good and we are estimating a crop of 750,000 tons, and in Texas at 100,000 tons. Weather problems prior to the completion of harvest could modify these numbers slightly in any area.

Sugar: Raw Cane Sugar Production, USA, 1,000 tons

	1983/84	1984/85	1985/86	1986/87	1987/88	
1988/89						
Florida	1223	1412	1413	1476	1517	1550
Louisiana	603	452	532	671	731	750
Texas	60	81	76	91	106	100
Hawaii	1044	1062	1012	1043	979	980
TOTAL	2930	3007	3033	3281	3333	3380

Beet sugar production will be down an estimated 500,000 tons, from last year, on a crop year basis. Our current estimate is 3,450,000 tons, raw value. We have estimated the production by individual beet processing companies. It is obvious that the drought impacted most heavily in the Red River Valley, Michigan and Ohio areas, the only areas not under irrigation. For the five processors in these areas we are estimating a production decline of about 20 percent. Since beginning stocks in these areas were at minimal levels this reduction in production will not be offset by an increase in carry-in stocks.

California is the other area which will have a reduction in production. In the Imperial Valley, beet yields were reduced due to an infestation of white fly. In the Central Valley virus yellows have lowered beet yields and recovery rates, and of more importance, root rot due to extreme summer temperatures, has also reduced beet yields, lowered sugar content, and

slowed down processing. Beet sugar supplies in California will be tight until the spring harvest begins in March for the over-wintered beets. It is interesting that one beet processing company in California has imported raw cane sugar and is processing this into refined sugar in conjunction with the processing of beets.

Overall we estimate domestic sugar production to be down 503,000 tons for 1988/89 from the 1987/88 level, a thirteen percent decline. And yet, as we all know, sugar supplies in the USA will, in the 1988/89 year, equal sugar demand. The USDA will see to this by adjusting the quota to cause a supply/ demand equivalence.

Stock Levels

We are using a stock figure for October 1, 1988 of 1,303,000 tons. Cane refiners total stocks on October 1 have been remarkably stable in recent years. In 1988 they were 629,000 tons, in 1987 at 634,000 tons, in 1986 at 639,000 tons, and in 1985 at 627,000 tons.

Mainland cane processors stocks have been somewhat more variable, with the level depending on raw sugar price levels during the summer. The October 1, 1988 level of 132,000 tons is the lowest since 1983, and no doubt was due to the tight quota causing raw sugar futures prices to exceed 22.5 cents/ pound in late July, against a 21.76 MSP.

Beet processor stocks were also at relatively low levels. With a production of 3,953,000 tons in 1987/88, deliveries were at a high rate and stocks were reduced to 403,000 tons on October 1, 1988. While this was an apparent reduction of 107,000 tons from the stock level of the previous year, we suspect that the reported stock number on October 1, 1987 was inflated by 50,000-100,000 tons due to the very early startup in harvest in 1987.

There are no CCC stocks of sugar.

We have reported Hawaiian processor stocks on October 1, 1988 at 139,000 tons.

The total stock level of 1,303,000 tons is well below the past two years. We judge that in setting a quota for 1989, that no consideration should be given to a further reduction in stocks for October 1, 1989.

Thus in estimating quota requirements we are using an ending stocks number, exactly equal to the beginning stock estimate.

Consumption Outlook

There are always problems in how domestic consumption is to be measured. The manner in which we measure it is to take total refined sugar deliveries by beet processors, mainland cane processors and importers. To this is added deliveries by cane refiners less exports and alcohol use, plus

deliveries by CCC to the domestic market for food use. Hawaii is included. We then add separately the exports to Puerto Rico. We do not take account of blends, or any transfers of sugar containing products for export.

There has been an optimistic feeling that sugar consumption has been increasing during the past two years, and it is true that deliveries, as we have measured them, rose from 7,806 thousand tons in 1985/86 to 8,053 thousand tons in 1986/87 and to 8,181 thousand tons in 1987/88. However, one has to be careful about projecting the increase of 247,000 tons in 1986/87 or the 128,000 tons in 1987/88 into the future. While data are not available to confirm it there are probably two reasons that increases in deliveries in those two years will not be repeated. The first is that actual use in 1985/86 was under-reported due to the "Bittersweet" problem, and with the elimination of this problem a one-time increase in reported deliveries occurred. The second is that in 1987, as world sugar prices increased and drawback values fell, there was a switch to using domestic sugar in some products, instead of world sugar, which gave an apparent consumption increase, but was really only a change in sources.

Some confirmation of a slowdown in the rate of increase in deliveries is given if one looks at a quarterly breakdown. In 1987/88 deliveries increased 128,000 tons. However, this was made up of a 116,000 ton increase in October-December, 1987, over the same quarter a year earlier, and an increase of 41,000 tons in January-March, but a reduction of 18,000 tons in April-June, and a reduction of 11,000 tons in July-September. In the last nine months the increase in deliveries was only 12,000 tons. While we are optimistic regarding continuing increases, we have set the increase for 1988/89 at 69,000 tons over 1987/88. This is about one half the increase that occurred in 1987/88 and gives a nice round figure of 8,250,000 tons for 1988/89. If one adds to this an export level of 55,000 tons to Puerto Rico, we are forecasting total refiner deliveries, excluding exports to other sources, at 8,305,000 tons, raw value.

Quota Requirements

There are no techniques for exactly estimating quota requirements. One must first consider whether a fiscal or calendar year approach is best, and then make assumptions about eventual production, how much of this production will be marketed, what will be the level of consumption, and whether or not a stock increase or decline is desired.

Our approach is as simple as we can make it and still retain adequacy.

1. A fiscal year is considered, because we cannot estimate stocks on January 1, 1989, and January 1, 1990.
2. We assume no stock change should occur in the coming year.
3. Domestic production is estimated at 6,830,000 tons.
4. Deliveries for consumption in the USA are estimated at 8,250,000 tons.
5. The imbalance, 8250-6830, is estimated at 1,420,000 tons.

6. Excess supplies from the 1987/88 quota are estimated at 100,000 tons, and sources other than refiners will deliver 20,000 tons.
7. The quota announcement in December should approximate 1,300,000 tons.

To show how this procedure works we have shown estimates for the past five years along with estimates for 1988/89 in Table SU417.

The top part of the table begins with total deliveries for human consumption in the USA, including Hawaii. From this we deduct the crop year level of beet sugar production and deliveries by importers of refined sugar, direct deliveries by mainland cane processors, and deliveries by CCC. The sum of these deliveries when subtracted from total deliveries should equal deliveries by cane refiners. Actual refiner deliveries have been close to this implied rate over the past five years. (In 1986/87 beet deliveries were greater than production due to the early startup in the fall of 1987, and in 1987/88 beet deliveries were less than production for the same reason. If adjusted, this would reduce the +75 and increase the -24 shown.)

In the bottom section of the table we show refiner deliveries and the domestic sources of those deliveries, i.e. mainland cane and Hawaii. The difference is the implied quota requirement. Except for 1984/85 (when U.S. free stocks declined 241,000 tons) this implied quota requirement has been close to actual quota imports.

For 1988/89 deliveries are estimated at 8,250,000 tons, beet sugar production at 3,450,000 tons, other deliveries at 20,000 tons, leaving a cane refiner balance of 4,780,000 tons.

If mainland cane areas and Hawaii each deliver their estimated production, then it would leave a balance to be covered by quota imports of 1,400,000 tons.

However, we believe quota imports in October-December, 1988 will exceed use by 100,000 tons as follows:

Oct-Dec, 1987 actual quota imports	229,000 tons
Jan-Sep, 1988 actual quota imports	648,000 tons

Total fiscal year quota imports	877,000 tons
Jan-Dec, 1988 assigned quota	1057,000 tons
Jan-Sep, 1988 quota imports	648,000 tons

Quota remaining for imports Oct-Dec, 1988	409,000 tons
Estimated quota requirements Oct-Dec, 1988	309,000 tons

Quota to be carried forward for calendar, 1989	100,000 tons

Thus we estimate a quota for calendar year 1989, which would cover January-September, 1989 requirements, and leave 300,000 tons available for October-December 1989 would be 1,300,000 tons.

Price Outlook

It is somewhat anomalous that even though overall supply and demand in the U.S. sugar market are designed to equal each other, the price swings from year-to-year can be wide.

The volatility is not in the price of raw sugar. From 1983/84 through 1987/88 the average level of #14 nearby futures was within 5 percent of the market stabilization price (MSP). An objective of the USDA is to create such a stability since it is assumed that this will prevent sugar from being delivered to the CCC. In 1988/89 we can only assume that the average for raw sugar prices will again be within 5 percent of the 21.80 cent/pound, MSP. This stability occurs because the trade recognizes that the USDA has ultimate power in achieving their objective and therefore if the price moves very far below the MSP buyers will support it, and if it moves very far above the MSP sellers will pressure it.

The price volatility occurs in two other areas. In the case of beet sugar a large crop requires that sales be made to points very distant from the factory. To do this beet sugar must be discounted in those areas,

- a. to provide incentive for buyers to substitute for cane sugar,
- b. to allow for increased freights, and
- c. to provide for transshipping costs if rail car shipments must be converted to truck delivery.

Thus, fob prices for beet sugar can drop to relatively low levels, even though the overall supply/demand for all sugar in the U.S. is unchanged.

The intense competition of beet sugar in peripheral areas causes refined cane sugar prices to also decline in order to try to retain market share. But since raw sugar price levels are determined by the USDA, and cannot decline, the only way to get a price decline is to reduce refiner margins.

In 1987/88 with a 74 million cwt beet sugar crop, beet sugar sold in literally every area of the continental USA. The result was beet sugar prices, fob, gross, as low as 22.0-22.5 cents/pound, for Inner Mountain processors. This caused refiner conversions in the Northeast to drop to as low as 200 points. Over time it has also caused refiners to close refining facilities, since low margins mean economic losses.

By contrast, in 1988/89 with a beet sugar crop of about 64 million cwts, beet sugar, fob, gross, is selling at about 27.50 cents/pound for first quarter, 1989, with some suppliers reluctant to quote forward. I do not expect to see much of a decline from this level. On the West Coast prices are 29.5 cents/pound, gross, fob, and I do not expect much decline from this price level, at least until the spring harvest begins in March.

In areas normally covered by cane refiners, users can expect to see current refiner conversions of 500-600 points continue throughout the fiscal year. They also need to be concerned about actual physical supplies in the summer of 1989, due to a potential shortage of refining capacity.

We have estimated refiner capacity, by refiner, on a normal working schedule, for 1988/89. Higher margins could bring forth additional capacity in some refineries, since we are not measuring absolute capacity levels.

Our estimate of refining capacity for 1988/89 is 96.5 million cwts, refined basis. This is compared with refiner deliveries in 1987/88 and expected deliveries in 1988/89, as follows. The result is a potentially tight situation for 1988/89.

Sugar: Cane Refiner Deliveries Relative to Capacity

	1987/88		1988/89 est.	
	1,000 tons raw value	mil cwts refined	1,000 tons raw value	mil cwts refined
Cane Refiner Deliveries to:				
Domestic	4236	79.2	4780	89.3
Exports	437	8.2	200	3.7
Puerto Rico	55	1.0	55	1.0
TOTAL	4728	88.4	5035	94.0
Percent of Capacity		91.6		97.4

Beet Sugar: Production by Companies, 1,000 cwt, refined

	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89 est.
Amalgamated	10200	10000	10000	12500	13500	12750
American Crystal	10780	11400	12500	15100	17500	14250
Delta	800	1000	1000	650	890	750
Great Lakes			690	950	890	800
Holly	6860	8960	10100	9360	14100	13100
Michigan	3320	3700	3600	3100	3950	3800
Monitor	1060	1300	1620	1550	2100	1900
North Central	4340	4200	5600	5110	7100	4150
Spreckles	4600	5600	4900	5630	6350	5400
Union*	1740	1980	1990	2000		
Western**	6200	5660	4500	7900	7500	7600
Total	49900	53800	56500	63850	73880	64500

* Beginning 1987/88 is included with Holly

** Prior to 1985/86 data are for Great Western Sugar

Refined 1,000 tons	2495	2690	2825	3193	3694	3225
Raw 1,000 tons	2670	2870	3020	3416	3953	3450

Published Data

Refined 1,000 tons	2522	2715	2804	3193	3694	
Raw 1,000 tons	2699	2905	3000	3416	3953	

SU211

11/21/88

Sugar: Domestic Use and Source of Deliveries, fiscal years
1,000 tons, raw value

	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89 est.
Domestic Deliveries	8578	8058	7805	8053	8181	8250
Beet Sugar Production	2699	2905	3000	3416	3957	3450
Balance	5879	5153	4805	4637	4224	4800
Other Deliveries 1/	63	105	85	43	18	20
Implied Refiner Deliveirs	5816	5048	4720	4594	4206	4780
Cane Refiner Deliveries (Reported)	5772	4991	4725	4519	4230	4780
Implied - Reported	44	57	-5	75	-24	0

1/ Importers refined, Mainland cane processors direct, and CCC

Sugar: Cane Refiner Deliveries and Source of Sugar, fiscal years
1,000 tons, raw value

	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89 est.
Cane Refiner Deliveries	5772	4991	4725	4519	4230	4780
From Mainland Cane	1758	1587	2064	2156	2447	2400
From Hawaii	1032	953	762	1104	920	980
Total Sources	2790	2540	2826	3260	3367	3380
Quota Requirements (Dels. - Source)	2982	2451	1899	1259	863	1400
Quota Imports	3030	2192	1850	1237	877	
Balance	48	-259	-49	-22	14	

SU417

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Sugar: Deliveries for U.S. Consumption
1,000 Short Tons, raw value, including Hawaii

	Cane Sugar Ref.	Beet Sugar Proc.	Importers plus Mainland Cane Proc.	CCC	Total
	-----	-----	-----	---	-----
1980/81					
Oct-Dec	1617	730	3	10	2360
Jan-Mar	1489	713	15	0	2217
Apr-June	1735	774	13	0	2522
Jul-Sept	1767	948	11	0	2726
Total	6608	3165	42	10	9825
1981/82					
Oct-Dec	1583	716	4	0	2303
Jan-Mar	1397	683	3	0	2083
Apr-June	1562	829	7	20	2418
Jul-Sept	1571	792	37	0	2400
Total	6113	3020	51	20	9204
1982/83					
Oct-Dec	1502	722	29	0	2253
Jan-Mar	1382	695	1	0	2078
Apr-June	1419	774	2	0	2195
Jul-Sept	1588	726	35	0	2349
Total	5891	2917	67	0	8875
1983/84					
Oct-Dec	1464	707	19	0	2190
Jan-Mar	1395	610	25	0	2030
Apr-June	1460	653	8	0	2121
Jul-Sept	1453	770	11	0	2234
Total	5772	2740	63	0	8575
1984/85					
Oct-Dec	1363	699	8	0	2070
Jan-Mar	1143	734	33	0	1910
Apr-June	1185	755	31	0	1971
Jul-Sept	1300	776	9	24	2109
Total	4991	2964	81	24	8060
1985/86					
Oct-Dec	1259	719	7	31	2016
Jan-Mar	1096	706	11	6	1819
Apr-June	1150	737	4	16	1907
Jul-Sept	1220	834	9	1	2064
Total	4725	2996	31	54	7806
1986/87					
Oct-Dec	1158	811	7	20	1996
Jan-Mar	1072	834	3	0	1909
Apr-June	1122	873	7	0	2002
Jul-Sept	1167	973	6	0	2146
Total	4519	3491	23	20	8053
1987/88					
Oct-Dec	1130	976	6	0	2112
Jan-Mar	966	983	1	0	1950
Apr-June	954	1026	4	0	1984
Jul-Sept	1186	942	7	0	2135
Total	4236	3927	18	0	8181

SU048E

11/21/88

WORLD SUGAR

Is the Structure Changing

Whenever one undertakes to analyze world sugar statistics the first reality to be accepted, is that the data are bad. They are incomplete, in error, and subject to large revisions. Furthermore, there are no data series available on a world-wide basis which one can finally point to and say - "these are the true numbers on production, stocks, exports, imports and consumption". Consequently, one must work within the confines of the available, if inaccurate data base, and accept that errors are being made.

For my own purposes I tie everything in with F.O. Licht numbers, but not in the manner of most other analysts. While International Sugar Organization data may be considered by many to be the most accurate series available, I have great difficulty trying to make country-by-country production forecasts which coincide with the ISO calendar year base.

If one had decided upon a data base and the objective is to forecast world sugar prices, then some systems of analyses must be brought into play. In recent years those users of time series analyses have seriously questioned whether it is any longer relevant. The concern is whether or not the changing structure in recent years in the production and distribution of sweeteners, has been of sufficient magnitude to render time series analyses ineffective, if not inappropriate. My own conclusion is that there has been little structural change in the world sugar economy. There are some shocks to it, but not permanent structural damage.

Consumption Changes

In terms of consumption, world sugar continues to increase at annual rates not greatly changed from one or two decades ago. There are considerable variations in the growth rates by country, but these variations are submerged by continuous increases in the population centers of the world. These significant consumption increases are mainly due to population growth, but in some significant instances are also due to a reduction in the restrictions on sugar consumption or the availability of good substitutes. Some of the more recent changes are worthy of mention.

In February, 1986, the Brazilian government froze prices of sugar but not wages so that real prices of sugar by midyear had declined 40 percent. The result was a surge in consumption. Using Licht data, Brazil consumption, on a September-August year, ranged from 5.94 million tonnes to 6.19 million tonnes in the 1979/80 to 1984/85 period. In 1986/87 it jumped to 7.12 million tonnes, due to lower sugar prices and hoarding. It has since declined as relative sugar prices have again increased.

In the USSR sugar consumption in 1982/83-1985/86 ranged from 13.2 to 13.4 million tonnes. In 1986 as the government de-emphasized liquor consumption by closing bars and liquor shops and raising prices on liquor it stimulated sugar purchases for home distillation of liquors. USSR consumption in 1986/87 was estimated at 13.9 million tonnes, and in 1987/88 at 14.1 million tonnes.

The classic case is the USA, where Licht estimated consumption in 1979/80 at 9.62 million tonnes, but at 7.2 million tonnes in 1985/86. This decline was due to the substitution of high fructose corn syrup for sugar.

However, if one fits a linear time trend to sugar consumption in major countries or areas, it is obvious that a strong uptrend persists. To statistically fit such trend lines it is imperative that beginning and ending time periods be selected when sugar supplies were ample. In this way the results are not biased upward or downward due to a constraint on supplies. For this reason, the 1977/78-1987/88 time period was chosen.

Trend lines fitted for 35 countries (EEC considered as a country) show that a positive uptrend was present in 31 of these. The exceptions were the USA, EEC, Japan and Romania. Even the declines in EEC, Japan and Romania were very small, and in the past three years an uptrend has occurred in the USA. The annual consumption increase over this period, with the USA included, is 1.97 million tonnes per year. If the USA is excluded, the trend is 2.30 million tonnes per year. If the USA is excluded and an additional 77 thousand tonnes per year is attributed to the USA based on the past three years, the annual increase in world sugar consumption is 2.37 million tonnes per year.

If one ignores the shocks to the system the consumption of sugar in the world has shown close to a 2.0 million tonne increase per year for the past 25 years. That has to be termed stable.

Production

Production has the same stable nature, but the shocks are of a different nature. Weather is the most common cause and often the severest. But economic incentives are also important, at least for short periods of time.

In the United States, the prices of domestic sugar provided incentive to increase production 1.5 million tonnes from 1983/84 to 1986/87. Only India had a larger production increase over this time period. From 1981/82 to 1986/87 or 1982/83 to 1986/87 only the USSR has had a larger production increase than the USA. This was not a demand generated increase, although the USDA guaranteed that the demand would be there.

In PR China lack of economic incentive has kept sugar production from increasing to keep pace with increasing per capita consumption and increasing population. Recently the government has announced an increase in prices for cane and beets for the 1988/89 season plus additional subsidies to be paid to farmers, in an attempt to encourage production.

In India production has increased from 7.8 million tonnes in 1981/82-1984/85 (two good seasons and two bad seasons, climatically) to 9.9 million tonnes in 1987/88. A major reason is the increase in prices to growers from 14 rupees/100 kg in 1985/86 to 17 rupees in 1986/87, to 18.5 rupees in 1987/88. At the same time sugar prices to consumers were permitted to rise with the levy/free sugar ratio dropping from 65/35 in 1985 to 55/45 in 1986, and 50/50 in 1987. This means that, instead of 35 percent of the sugar being permitted to trade at whatever market prices will bring, this has been increased to 50 percent. The remainder of the sugar is price controlled.

In the USSR, not only price incentives, but technological improvements have helped to increase production. The ICT plant (Industrial Cropping Technology) has increased the use of pesticides, herbicides, and fertilizers. In addition, beginning in 1982 farmers began to be paid a bonus for a higher sucrose content of sugar beets. These actions have improved Soviet yields in recent years.

The lack of economic incentive has led to large production declines in the Philippines and Dominican Republic. This "lack" is the reduction of high-priced U.S. export quotas for these countries. So it is not only weather that causes swings in sugar production.

Changes in the Structure

There have been some structural changes occurring in the world sugar economy over time and one should expect that they will continue. These are

- a. countries requiring significant net imports of sugar, and having an ability to increase sugar production, have done so.
- b. countries having significant net exports of sugar, have in general decreased production, although there are a few exceptions.

If one looks at thirteen countries requiring net imports including USSR, USA, PRC, Indonesia, India, Pakistan, there has been a decided shift. In 1981/82 and 1982/83 average imports were 19.7 million tonnes for this group of thirteen. By 1986/87 and 1987/88, average imports declined to 15.1 million tonnes, or a 4.6 million tonne decline. Over the same period, production rose from 31.0 to 38.0 million tonnes, for an increase of 7.0 million tonnes. This production increase allowed for the lower imports plus the increased growth in consumption. One can expect this trend to continue. The reluctance to use foreign exchange, to pay for imports which can be produced domestically, is a great incentive to build a domestic industry.

If one looks at fourteen countries which have been major net exporters, the opposite phenomenon has occurred, with production declining. Included in this group are the EEC, Cuba, Brazil, Argentina, Dominican Republic, Philippines, Taiwan. Also included are several which were exceptions. In Mauritius, Swaziland, Thailand and Australia, exports and production both

increased over the time period.

From a 1981/82 and 1982/83 average to a 1986/87 and 1987/88 average, exports declined from 25.5 million tonnes to 22.5 million tonnes, or a 3 million tonne net decline. Production over the same period declined from 50.0 million tonnes to 45.9 million tonnes for a 4.1 million tonne decline.

Thus, there has been a decided move toward importing countries becoming suppliers have tended to curb production for exports.

Exports versus Imports

In addition to determining whether major structural changes are occurring in world sugar, one must also contend with the manner in which data are reported.

Of serious concern is the fact that world exports do not equal world imports. Based upon ISO calendar year data from 1977 to 1987, world exports exceeded world imports in each year. The average excess for the eleven years was 796,000 tonnes per year. Since exports are treated as a demand rather than a supply, this means that over this eleven year period 8.75 million tonnes disappeared, in addition to the consumption estimates. If one uses Licht data for the 1977/78 to 1987/88 period, the average excess of exports over imports was 722,000 tonnes per year. Over the eleven years this is equivalent to an extra 7.94 million tonnes of disappearance, above the consumption estimates.

Obviously the data overestimates exports relative to imports, or overestimates production relative to consumption, or else overestimates current stock levels.

I have chosen to handle this problem by computing a disappearance number, rather than a consumption number. This, in essence, assumes that the production and stocks numbers are accurate. By adding production to beginning stocks and subtracting ending stocks, an estimate of total disappearance is computed.

Sugar Prices and Sugar Statistics

The only certain data series on world sugar is the level of futures prices. The question then arises as to whether one can use the inaccurate and incomplete data on production, consumption, imports, exports, and stocks, and make any reasonably accurate statements about price. Fortunately, we can, within some limits.

The specific price forecast is the average close of nearby world sugar futures for the January-June period.

Given the Licht data on production, consumption, imports, exports, and stocks, it is possible to determine a price level that is consistently comparable with such statistics during the January-June period. During the past nine years the use of supply/demand statistics has been capable of explaining 90 percent of the year-to-year variation in January-June prices. The average absolute error in this period is approximately one cent/pound. This accuracy level assumes that the Licht data are known with certainty. The problem is that the actual data are not known until after the forecast period is over so we must accept that errors in the price forecasts will exist.

Outlook for 1988/89

Current estimates published by F.O. Licht indicate a production for 1988/89 of 108.2 million tonnes, on a campaign year basis.

Based on a September-August crop year basis, production is estimated by Licht at 108.5 million tonnes, consumption at 108.3 million tonnes, beginning stocks at 32.4 million tonnes, and ending stocks at 32.3 million tonnes.

While I believe there is a strong tendency for analysts to use each others data, or the same original data sources, it is always worthwhile to consider estimates from a variety of sources. These are subject to continuous revision but recent numbers are presented from some sources. Data are in million tonnes.

	LICHT		CZARNIKOW		MAN		USDA		GILL DUFFUS	
	87/88	88/89	87/88	88/89	87/88	88/89	87/88	88/89	87/88	88/89
Prod.	104.5	108.5	104.3	107.1	104.0	107.6	103.8	107.1	104.4	107.75
Cons.	106.8	108.3	107.4	108.9	105.3	107.8	104.8	106.8	106.0	108.25
Prod -										
Cons.	-2.3	.2	-3.1	-1.8	-1.3	-.2	-1.0	.3	-1.6	-.50

The average of these five sources showed a production in 1987/88 of 104.2 million tonnes, a consumption of 106.1 million tonnes, and a deficit of 1.9 million tonnes. For 1988/89 the average estimates are for a production of 107.6 million tonnes, a consumption of 108.0 million tonnes and a deficit of .4 million tonnes. If such statistics turn out to be fact it does not portend a very bullish market.

Using only the Licht data as a basis for the price forecasts, results in a forecast of the average level of nearby #11 futures prices for January-June, 1989, of 10.2 cents per pound.

With March/May/July futures currently averaging near 10.0 cents/pound, it does not appear that there will be a large price move from current levels over the next six months.

World Sugar: Production, Disappearance, and Stocks
F. O. Licht Data 1,000 tonnes

Sept/Aug	Begin Stocks	Pro- duction	Supply	Disap.1/	End Stocks	End Stocks Disap.	Nearby Futures Price 2/ ----- cts/lb
69/70	19157	72981	92138	71014	21124	29.7	3.56
70/71	21124	71030	92154	73403	18751	25.5	4.59
71/72	18751	72176	90927	73074	17853	24.4	7.90
72/73	17853	75550	93403	76992	16411	21.3	9.19
73/74	16411	78200	94611	78231	16380	20.9	20.14
74/75	16380	77208	93588	75839	17749	23.4	25.31
75/76	17749	79855	97604	76965	20639	26.8	14.00
76/77	20639	85235	105874	80825	25049	31.0	9.10
77/78	25049	91857	116906	86306	30600	35.5	8.22
78/79	30600	90552	121152	89501	31651	35.4	8.44
79/80	31651	84324	115975	90078	25897	28.7	25.78
80/81	25897	88021	113918	88333	25585	29.0	21.31
81/82	25585	100702	126287	93036	33251	35.7	10.68
82/83	33251	101664	134915	96207	38708	40.2	8.18
83/84	38708	96373	135081	95552	39529	41.4	6.74
84/85	39529	101270	140799	101285	39514	39.0	3.75
85/86	39514	99411	138925	101989	36936	36.2	7.12
86/87	36936	103747	140683	105823	34860	32.9	7.26
87/88	34860	104442	139302	106868	32434	30.3	9.18
88/89-3/	32434	108234	140668	108351	32317	29.8	10.20

- 1/ Disappearance based on September-August year stocks and campaign year production.
2/ Price is average of nearby futures for Jan-June for second year shown
3/ Estimated

10/24/88

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WORLD AND DOMESTIC OUTLOOK FOR CORN SWEETENERS

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It's a pleasure to be in Washington today and address the USDA Agricultural Outlook Conference.

The World and Domestic Corn Sweetener Outlook has changed dramatically over the last 10 to 15 years. Until the advent of High Fructose Syrups in the early 1970's, corn sweeteners throughout the world were a very small part of the sweetener picture. "Conventional" corn syrups and dextrose were the main categories and growth was very slow. That changed rapidly in 1974 and 1980 when sugar spiralled to unparalleled heights. Coca-Cola and Pepsi-Cola approved the use of High Fructose Syrups. Most likely, the hands of time will not turn back. Today, there are about 80 commercial plants producing High Fructose Syrups on most every continent.

Let's begin with a global picture of sugar and HFS consumption from 1977 to anticipated use in 1990.

SLIDES 1 and 2 "World Sugar and High Fructose Syrup Consumption Trends"

Sugar consumption has risen from 81 million tons in 1977 to an expected 107 million tons by 1990. HFS is expected to increase from 1.2 million tons to 7.9 million tons during this same time. Total growth of sweeteners (sugar and HFS) will be about 33 million tons. HF Syrups have taken 20% of that growth - a significant percent to say the least!!

SLIDE 3 "World Consumption: Sugar and High Fructose Syrups"

We can see from 1975 to 1990 HF Syrups will increase their share of world sugar consumption from less than 1% to 7.2%.

SLIDE 4 "World 'Free' Market Sugar/High Fructose Syrup Impact"

Most HFS gains have come at the expense of "free market sugars." This impact, by 1990, is expected to total 7.9 million tons or 30% of combined "free" (world) sugar market and HFS markets.

SLIDE 5 "World High Fructose Syrup Consumption Estimated by Continent"

North America's share of world HFS consumption is declining. This is primarily due to growth in Asia and Eastern Europe. By 1990, almost 8 million tons dry basis may be consumed worldwide.

Now, let's turn to the domestic situation.

From modest beginnings, about the turn of the century, the corn wet milling industry has come a long way. The early 1970's brought the commercialization of HFCS in the U.S. The bull markets in sugar of 1974 and 1980 were the catalysts behind significant development and expansion.

In 1980, Coca-Cola approved partial usage of HFCS in their flagship brand and by late 1984, full replacement of sucrose was authorized by both Coke and Pepsi. These approvals were the driving force behind general worldwide acceptance of High Fructose Syrup.

1988 has been a very challenging year due to the worst drought in 50 years and its effect on the corn crop and net corn costs. Estimates are the crop may be reduced to about 4.5 billion bushels. There is also concern about next year's crop potential, should we have inadequate sub-soil moisture build-up this winter and spring. Without it, yield potential and crop size will remain below normal. This, coupled with a small carry forward on stocks, potentially suggests a very tight situation next fall.

This uncertainty along with the industry's inability to hedge co-products sales are key factors behind potentially higher prices for HFCS and conventional corn syrups in 1989. Several wet milling company announcements have indicated all HFCS products will be priced quarterly and HFCS-42 will be priced at 90% of HFCS-55% on a dry basis.

SLIDE 6 "Corn Supply and Demand"

Let's look specifically at corn supply and demand. We are estimating total supply at about 8.9 billion bushels compared with total demand at 7.3 billion bushels, leaving a carryover of 1.6 billion bushels. Some have suggested carryover may be as low as 1.3 billion bushels. Whatever happens, stocks will slide from approximately 55% of a year's use to 20% or less. Anyway you look at it, it's a very tight situation.

Currently corn futures contracts through July, 1989 are trading from \$.65 to \$.85 per bushel. We are projecting average #2 yellow corn prices to range from \$.50 to \$.75 per bushel during the first half of 1989 to

\$2.25 to \$2.50 per bushel in second half 1989, if the new crop develops on a favorable basis.

SLIDE 7 "1984-1988 Corn Prices, Co-Product Credits, Net Corn Costs"

Corn prices peaked in 1984 at about \$3.50 per bushel with the low point occurring during first quarter, 1987, at about \$1.35. Currently cash corn is about \$2.45 per bushel.

A significant and important trend has taken place in co-product credits.

SLIDE 8 "1985-1988 Corn Co-Product Credits % of Corn"

During the latter part of 1986, co-product credits increased to over 90% of corn prices from the historical 40% to 50% level. Currently, they are about the 55% level.

SLIDE 9 "Major Market Estimates for HFCS"

HFCS has grown from 4.6 billion lbs. dry in 1980 to an expected 11.6 billion lbs. dry this year. The split is about 38% of usage for 42% HFCS and approximately 62% for HFCS 55%. The beverage category has grown from 41% to 75% of total usage. Most substitution of sucrose by HFCS, that functionally can take place, has occurred.

SLIDE 10 "U.S. Per Capita Soft Drink Consumption"

U.S. per capita soft drink consumption has grown from 1980 and is expected to grow more rapidly to 1995. Projections for 1989 suggest over 50 gallons per person with the split about 70% nutritive, 30% diet.

Nutritive soft drinks are projected to grow 2% annually until 1992, when the Nutrasweet patent expires. As other non-nutritive sweeteners are approved, considerable competition may develop, resulting in lower raw material costs, higher soft drink margins, and greater promotions of diet products. Should this develop, there could be a negative effect on nutritive products. The diet segment is expected to grow 8% annually and projected to represent 35% to 40% of a larger market by the mid 1990's.

SLIDE 11 "Total U.S. Theoretical HFCS Production Capacity Vs. Demand"

As we approach 1990, supply and demand come together. The total capacity figure of 12.4 billion lbs. dry includes Canadian capacity less consumption in Canada. The figure does not include closed plant capacity at ADM Montezuma, NY and Staley, Morrisville, PA.

By 1990, total demand is expected to approach the 12.5 billion pound dry range. HFCS-55% theoretical capacity is about 8.5 billion lbs. dry, with demand approaching 7.5 billion lbs. dry by 1990, HFCS-42% capacity is 3.9 billion lbs. dry. Theoretically, 42% demand exceeds capacity assuming maximum production of 55%. However, this deficit will be and is currently satisfied by reducing 55% production potential in favor of 42%.

SLIDE 12 "1989 HFCS Seasonality, Theoretical Capacity and Estimated Demand"

Let's now look at 1989 HFCS Seasonality, Theoretical Capacity, and Estimated Demand on a quarterly basis. Quarterly capacity for 55% is about 2.1 billion lbs. dry and almost 1 billion lbs. for 42%. As you can see, second and third quarters are expected to be tight for both products, particularly since this year two major soft drink companies have authorized 42% HFCS in place of 55% in their brands. Because of the lower sweetness value of 42%, approximately 5% to 7% more HFCS is required.

SLIDE 13 "(Combined) 1989 HFCS Seasonality, Total Theoretical Capacity and Estimated Demand"

Manufacturers have done an outstanding job of providing product to the market. Only because of its infrastructure and ability to manufacture in anticipation, store, and distribute, can demand be satisfied during the peak summer period. Inventory build-up in 1st quarter helps satisfy the deficit in 2nd and 3rd quarters.

Now let's look at another facet of wet milling in the U.S. - alternatives. The corn wet milling industry has made product mix changes over the last few years and will continue to make changes in production options that give the industry maximum flexibility with total grind. Some specific examples of options that have been developed are:

ADM - expanded ethanol production, expanded dextrose production, starch for non-food uses (biodegradable plastic bags and pulp and paper industry), crystalline fructose, specialty sweeteners (sorbitol, mannitol) and chemicals from carbohydrates.

American Maize - specialty starches - value added products such as cyclo-dextrins for color and flavor encapsulation.

Cargill, Inc. - a citric acid plant using state of the art fermentation technology, specialty corn syrups/liquid dextrose.

Coors BioTech - increased starch production for use at their brewery. Starch for fermentation products.

Corn Products - expanded dextrose capacity, ion exchange corn syrups.

Hubinger - construction of an ethanol production facility, and expansion of specialty starch lines.

Minnesota Corn Processors - construction of an ethanol production facility.

Staley - Crystalline fructose production (Krystar), ion exchanged corn syrups and specialty corn syrups, expansion of specialty starch lines, dextrose production facility upgrade, and biotechnology and chemicals from carbohydrates.

Of the growing list of alternatives, the most significant thus far has been ethanol.

SLIDE 14 "U.S. Fuel Ethanol Anhydrous Production Capacity, Sales and Imports"

1988 ethanol capacity is estimated at 1.3 billion gallons. All but 50 million gallons are produced domestically. Sales are forecast at 800 million gallons. As you can see, both sales and capacity have skyrocketed over the last 8 years.

The long-term outlook for ethanol is favorable as current policy and thinking among influential groups, as well as President-elect Bush, support expanding fuel ethanol usage. Washington so strongly supports this view that for the first time in eight years, the federal excise tax exemption is not up for repeal. Long-term, the alcohol industry has federal tax incentives that are in place through September, 1993.

The federal tax for gasoline is 9¢/gallon and 3¢ on ethanol blends. The 6¢ per gallon subsidy is viewed in Washington as supporting the farm community. According to the U.S.D.A., the exemption results in farm savings from higher corn prices, lower support payments, lower storage costs, and smaller outlays by C.C.C. for its operations. Offsetting some of these benefits is the loss of federal highway trust fund receipts due to the excise tax exemption for ethanol blends.

Four main coalitions support the increased use of ethanol. They are:

a) Agricultural interests who support the increased use of corn and feed grains due to higher prices resulting in greater farm income.

b) Environmentalists feel that fuel ethanol blends effectively cut carbon monoxide pollution 10% to 30%. Individual states such as Arizona, California, Idaho, Minnesota, and New Mexico have legislation pending that require alcohol fuel be used to meet clean air standards. Colorado became the first state to adopt

ethanol usage in meeting such standards. Both the House and Senate have proposed federal legislation that would require 50% of the nation's gasoline contain 10% ethanol by 1992. If such legislation were enacted, two billion bushels of feed grains would be required.

c) Many groups, for National Security reasons, support ethanol use to lower dependence and usage of foreign oil and keep the U.S. less vulnerable to outside influence.

d) Labor unions favor ethanol because it creates and preserves existing agricultural jobs, making for a stronger farm economy.

Ethanol production costs can be lowered via technological breakthroughs in enzyme technology, genetic engineering, and cellulose conversion. However, because of higher feedstock costs and lower petroleum prices, margins have declined.

SLIDE 15 "1981 and 1989 Growth in Corn Industry Ethanol Production Capacity"

By 1989, the corn industry will represent almost 700 million gallons of a total 1.3 billion gallon capacity. In 1981, ADM at Decatur and Cedar Rapids produced 200 of the total 380 million gallons produced.

Corn feed stocks are expected to account for about 95% of total U.S. ethanol production. Approximately 340 million bushels of grain will be used by the ethanol industry, of which ADM and A. E. Staley will account for 75%. It is interesting to note Hubinger is entering the picture while CPC, Grain Processing, and MCP are already producing product.

For these wet millers, ethanol production is the key to keeping plants fully utilized year round and spreading fixed costs over a full year. Ethanol stores indefinitely and costs about 4 cents a gallon or less for annual storage.

Crystalline Fructose

This product is being marketed as a partial replacement for granulated sugar in processed foods where sweetness is important. In its pure form the relative sweetness is 1.8 as sweet as sugar. In a 10% solution at room temperature, the relative sweetness is 1.17.

SLIDE 16 "Properties: Sweetness"

Now let's look at the sweetness response comparison of fructose, sucrose and dextrose. The vertical axis measures intensity of the sweetener. The horizontal axis covers time in seconds. Fructose has a quick onset of sweetness; is more intense than the others, with its sweet

taste dissipating quickly. Sucrose comes on slower; is not as intense; and tends to last longer compared to fructose. Dextrose duration is in between fructose and sucrose. It is less sweet than either.

SLIDE 17 "Properties: Synergy"

Looking at the relative sweetness of fructose/sucrose blends, we see fructose provides a quick onset of sweetness and sucrose lasts longer; the blend results in a more intensive sweetness response than when used alone. This synergy is the reason the products are so suitable when used in combination.

It is also interesting to note that another synergism exists when used with Aspartame. In beverage experiments, a 5% Fructose-Aspartame blend allowed for a 90% reduction in Aspartame use to achieve the same sweetness level as 100% Aspartame.

Major markets for Crystalline Fructose are powdered beverages, cereals, dry mix desserts, dairy products, and some confectionary products. A. E. Staley has estimated the Crystalline Fructose market at 200 to 300 million lbs. in the U.S. at this time.

The following is our estimate on the domestic supply/demand picture for Crystalline Fructose.

Supply/Demand

A. E. Staley, Lafayette, IN*	- 100 million pounds
A. E. Staley, Thompson, IL**	- 25 million pounds
ADM, Clinton, IA***	- 25 million pounds

150 million pounds

Foreign Imports

Germany	- 3 million pounds
Japan	- 1.5 million pounds
France	- 0.5 million pounds
Total	- 5.0 million pounds

Demand

Estimated U.S. 1988 Consumption - 35 million pounds

*Estimate Staley selling about 30 million pounds annually.

**Staley, Thompson, IL presently not producing Crystalline Fructose.

***Majority of ADM, Clinton product is being exported.

Starches*

A primary use for starch is in the paper and corrugating industry to improve strength and act as a binder. Specialty starches are also used to coat or finish paper.

One of the largest new market potentials for modified starches has resulted from the way USA Today changed the news print standard. In the years ahead, most daily newspapers may routinely have four color print and need to improve print quality by applying a surface finish to the paper.

Food starches are being developed for microwave use in frozen entrees. When microwaving foods, these new products can provide sauces with a smooth, excellent sheen that does not separate and has excellent taste and aroma.

New cold water soluble starches will give customers the convenience of an instant starch and have the quality of cooking starches.

Still another product is starch based fat replacers. They will not work in cooking mediums, but are excellent for spreads, desserts, and meat processing. In these foods one can use a gram of starch and three grams of water to replace four grams of fat. From four grams of fat, one ends up with four calories rather than 36, about a 90% reduction!!

Citric Acid*

Citric acid has become one of the most widely used organic acids. It adjusts the acidity in flavor-sensitive foods and has a very clean taste. It has certain ions that would otherwise make beverages like wine or iced tea cloudy.

One of the newest uses for citric acid is to replace phosphates in detergents. It provides a biodegradable replacement for phosphates induced environmental problems.

The future for corn-derived carbohydrates as fermentation feedstocks looks excellent. Many chemicals can be produced with fermentation technology. As that technology improves, there will be more chemicals being produced from corn.

* CRA Corn Annual, 1988.

Cyclodextrins*

To understand Cyclodextrins, visualize a donut or truncated cones made up of individual dextrose or glucose units that are water soluble and chemically stable. They have the ability to bind desired compounds against the degradable effects of heat, light, oxygen and other chemicals. They are expected to be used in drugs, agricultural chemicals, flavors and fragrances, and household consumer products.

In foods, cyclodextrins can stabilize flavors so they can withstand the intense heat of baking, prevent fats and oils from oxidation and rancidity, and remove unpleasant tastes from certain juices.

Bio Degradable Plastics

The last wet miller alternative I would like to discuss has aroused a lot of excitement with environmentalists and government agencies.

ADM is using starch alone or with other components to cause plastics to degrade. The speed of the breakdown can be controlled by the level of starch and other components.

The commercialization of plastic bags for garbage, trash, groceries, and store use has been phenomenal - the problems unbelievable. Because plastics do not decompose naturally, this new technique could be a life-saver for the industry.

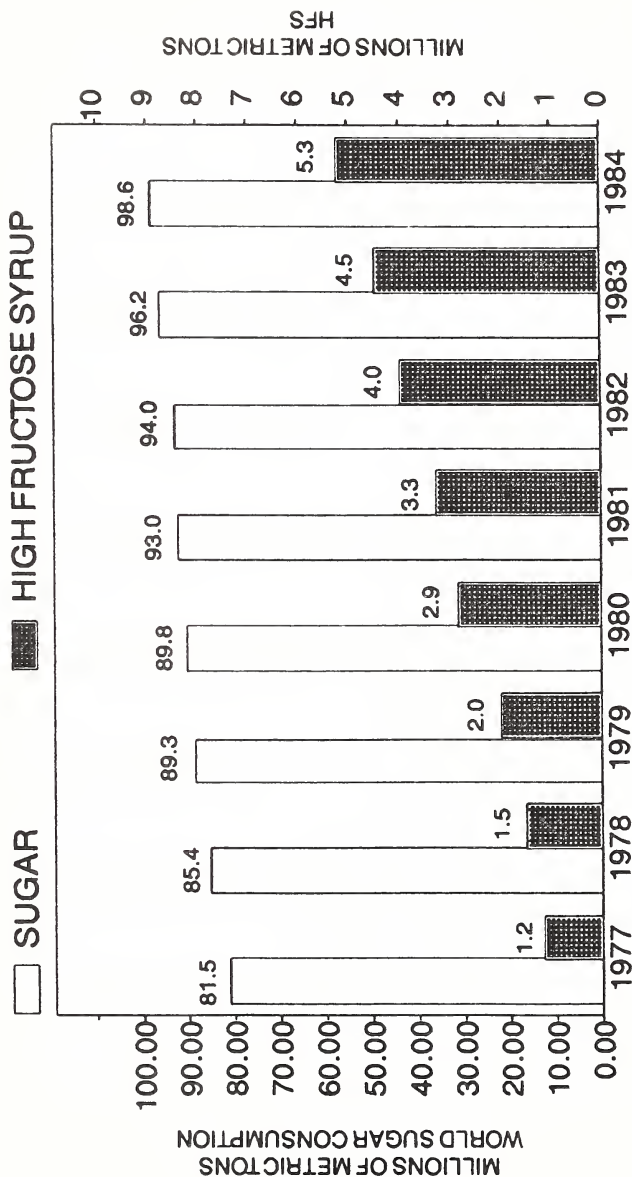
A related problem area is styrofoam containers used by the fast food industry. These new products are expected to expand corn starch usage and be a solution to the growing environmental problem of disposing of plastics.

In conclusion, it's always difficult to predict with any degree of certainty where time will take us on corn sweeteners, and particularly HFS, as we move forward. We can say, however, there are 80 commercial plants throughout the world and several more on the drawing boards. If world sugar prices were to again "take off," the corn industry would respond and do so quickly to capitalize on the opportunity, particularly in the area of Crystalline Fructose. With that backdrop it seems the sugar market peaks of the future may be less than we have seen in the past. Perhaps the presence of an alternative will be a mitigating circumstance to the market.

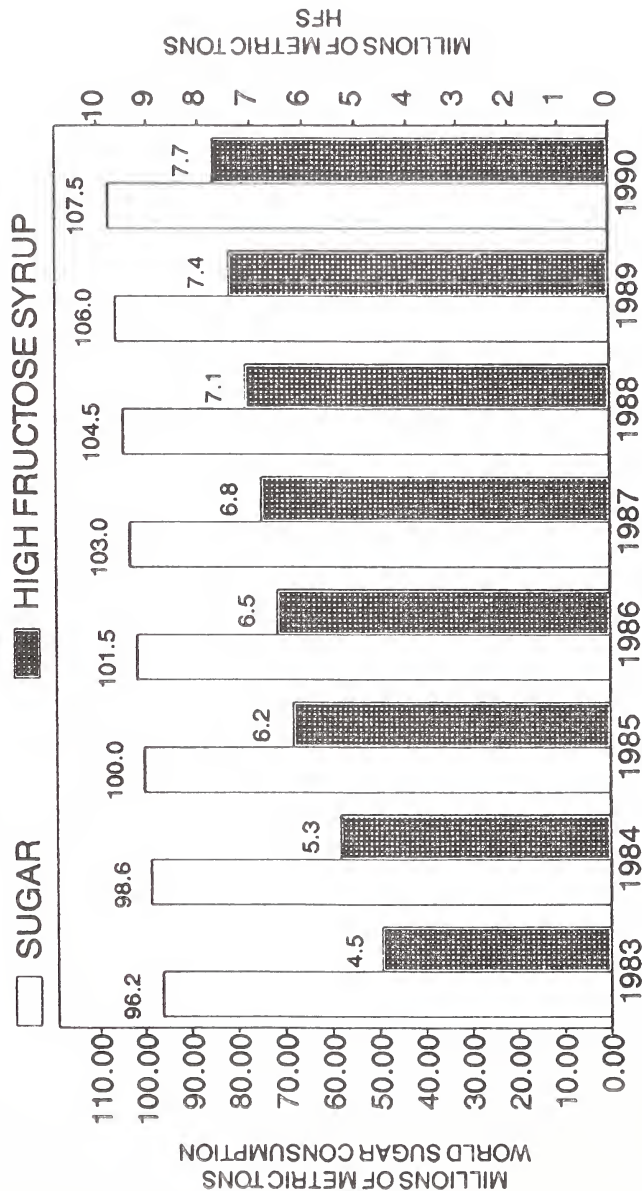
A second statement to be made is that the corn wet millers in the U.S. are also looking to alternatives. The starch slurry, that years ago started through the stream with just the potential destination of unmodified starch, "conventional" corn syrups, and dextrose, now has many more potential destinations. Such is progress that the corn wet milling industry has made over the last 10 to 15 years.

Thank you for the opportunity to share some of our thoughts on what we see on the corn sweetener horizon. It's always exciting to share ideas.

WORLD SUGAR AND HIGH FRUCTOSE SYRUP CONSUMPTION TRENDS



WORLD SUGAR AND HIGH FRUCTOSE SYRUP CONSUMPTION TRENDS

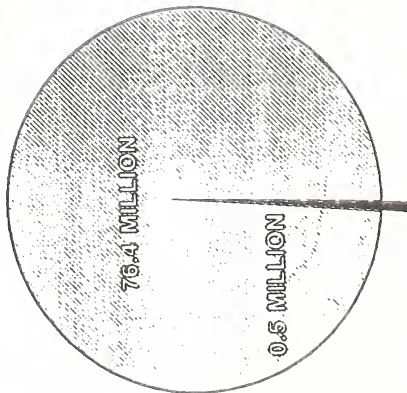


WORLD CONSUMPTION: SUGAR/HIGH FRUCTOSE SYRUPS (MILLIONS OF TONS)

DRY

1975

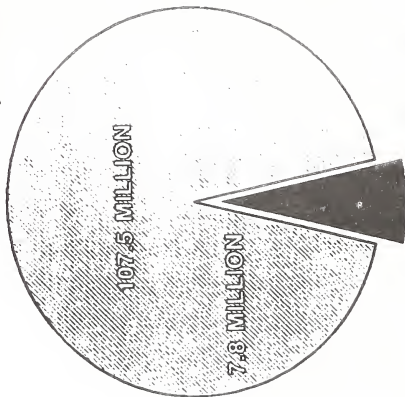
WORLD SUGAR
CONSUMPTION



HIGH FRUCTOSE SYRUPS
LESS THAN 1%

1990

WORLD SUGAR
CONSUMPTION



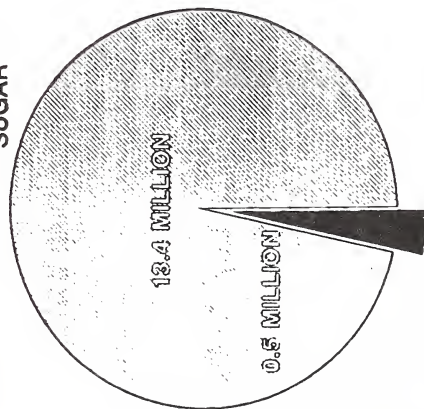
HIGH FRUCTOSE SYRUPS
APPROXIMATELY 7.3%

WORLD "FREE" MARKET SUGAR/HIGH FRUCTOSE SYRUP IMPACT (MILLIONS OF TONS)

DRY

1975

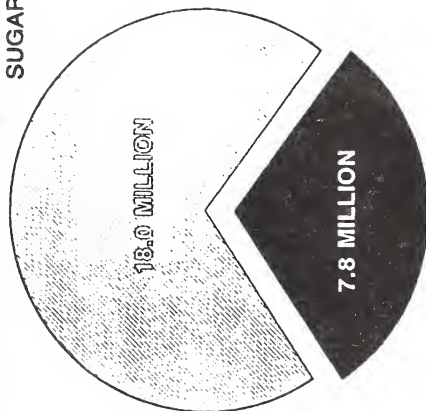
"FREE" MARKET
SUGAR



HIGH FRUCTOSE SYRUPS
.5M OR APPROXIMATELY 4%

1990

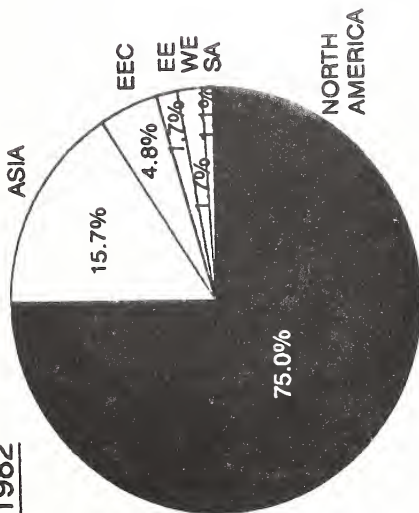
"FREE" MARKET
SUGAR



HIGH FRUCTOSE SYRUPS
APPROXIMATELY 30%

WORLD HIGH FRUCTOSE SYRUP CONSUMPTION ESTIMATED (THOUSANDS OF METRIC TONS)

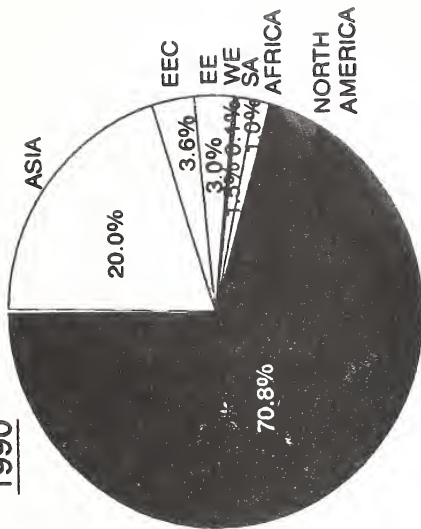
1982



WORLD TOTAL
3,991 M.T.

EE = EASTERN EUROPE
SA = SOUTH AMERICA

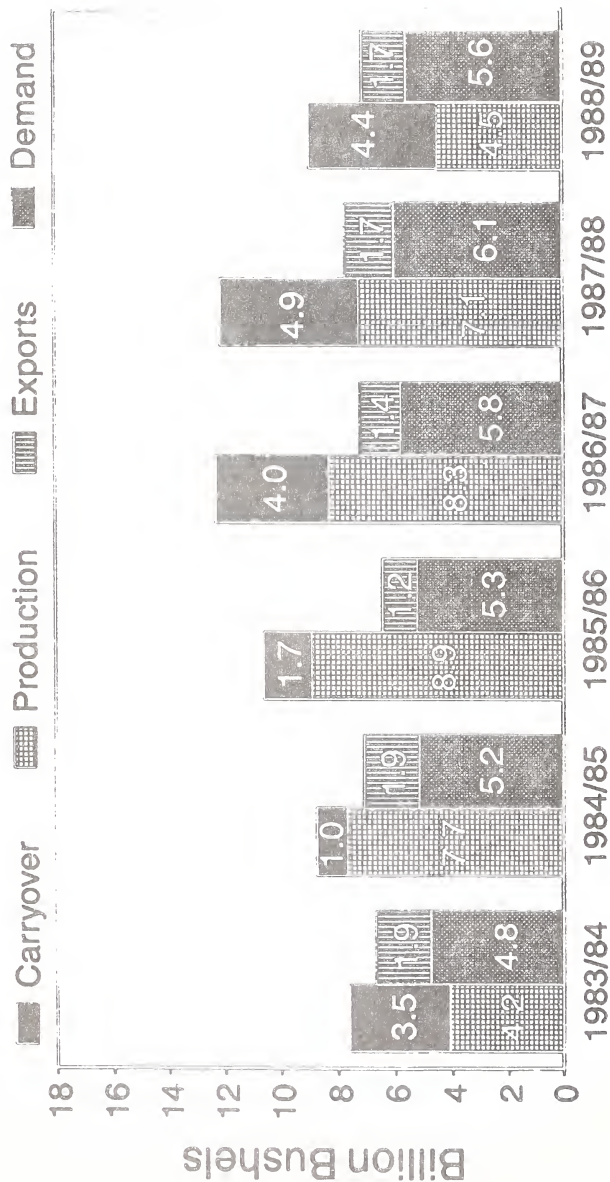
1990



WORLD TOTAL
7,841 M.T.

WE = WESTERN EUROPE
EEC = EUROPEAN ECONOMIC COMMUNITY

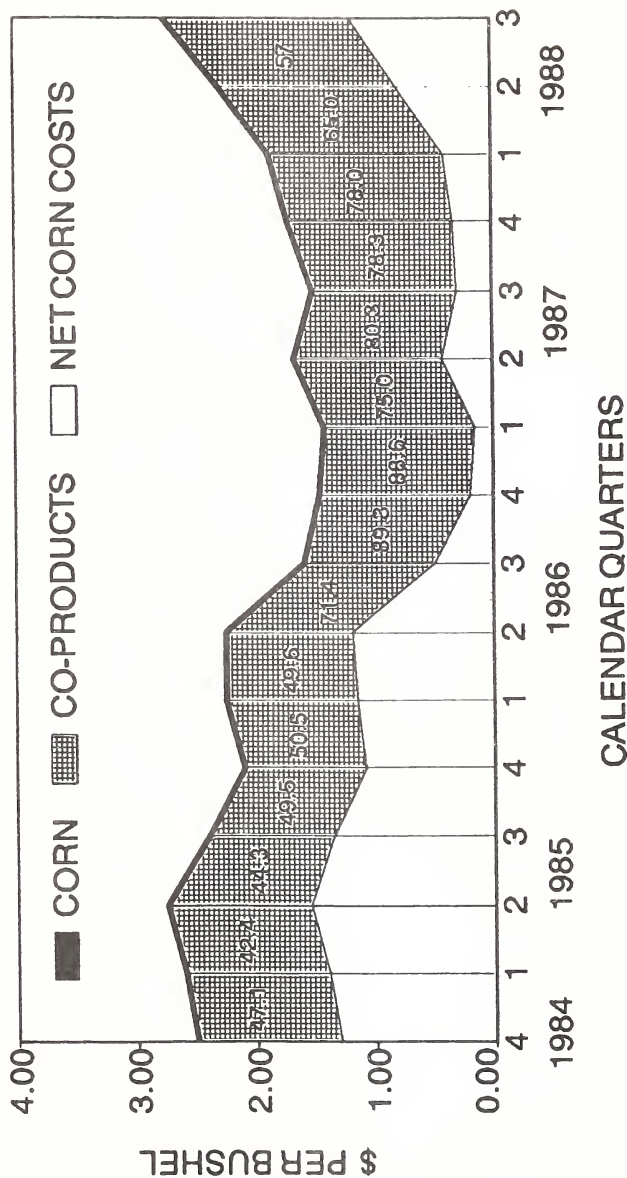
CORN SUPPLY AND DEMAND



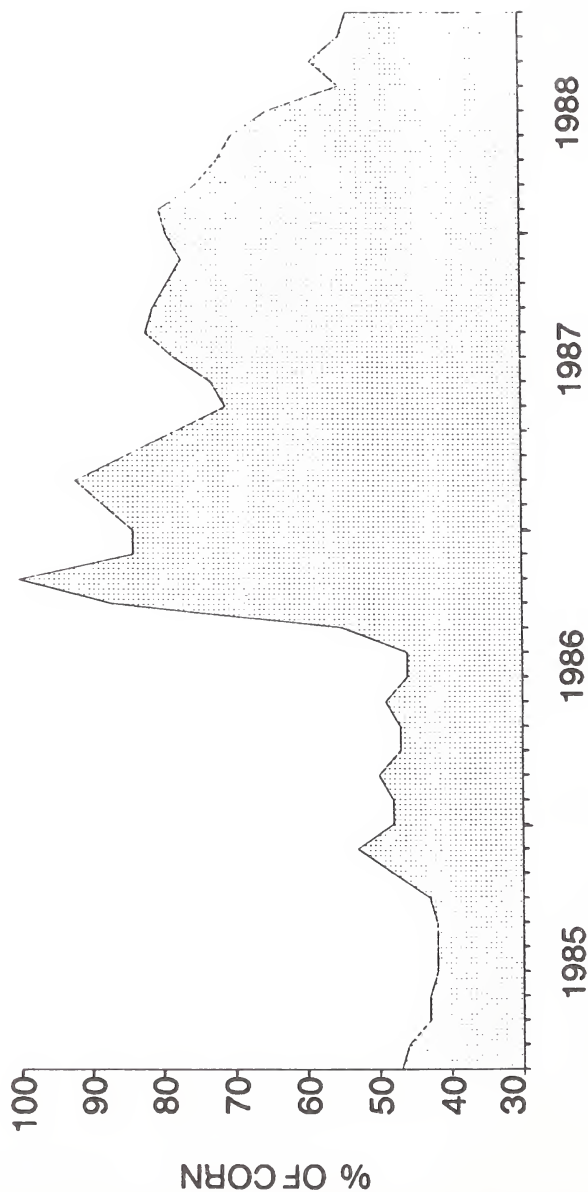
1988/89 PROJECTED

1984-1988

CORN PRICES, CO-PRODUCT CREDITS, NET CORN COSTS



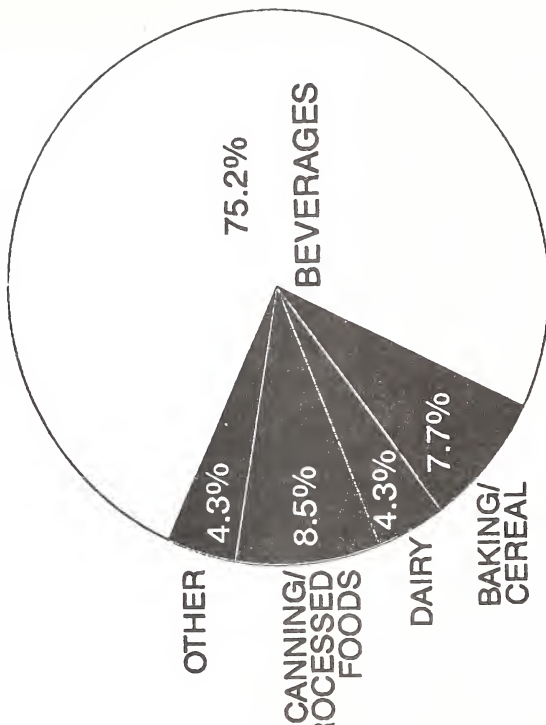
1985-1988 CORN CO-PRODUCT CREDITS % OF CORN



MAJOR MARKET ESTIMATES FOR HFCS DRY BASIS

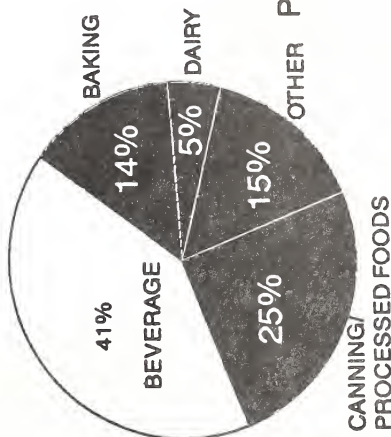
HFCS = 11.6 Billion Lbs.

1988

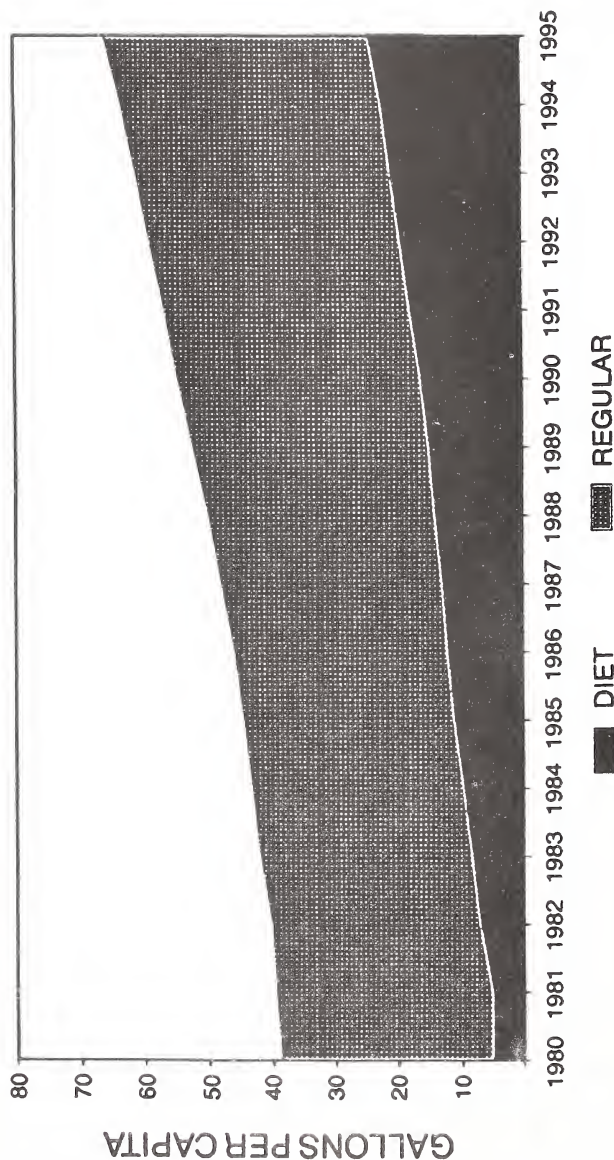


HFCS = 4.6 Billion Lbs.

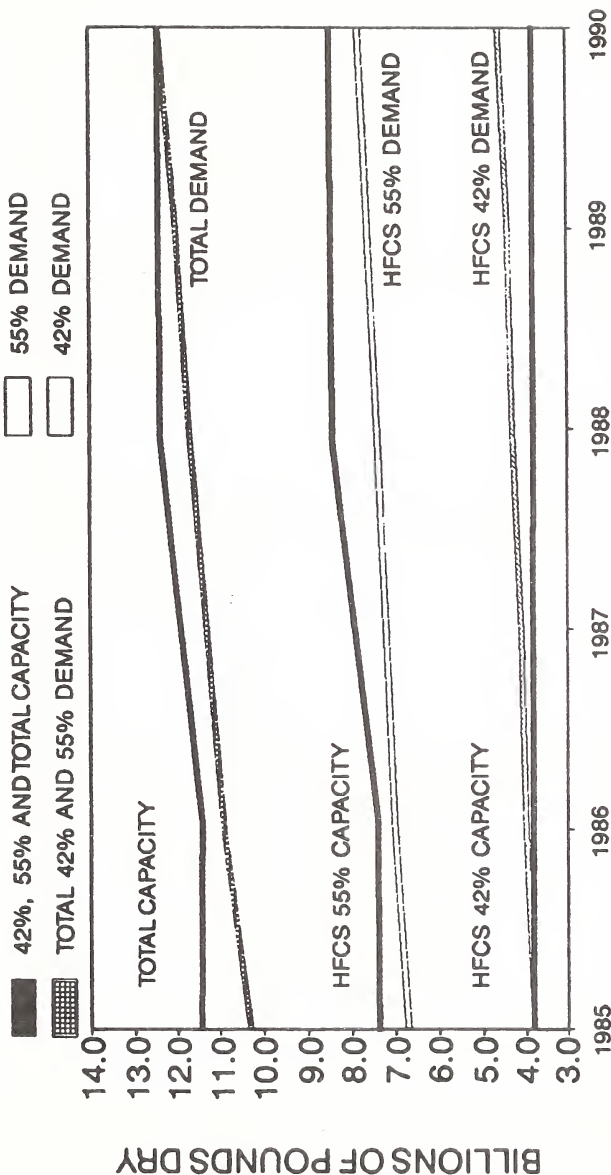
1980



U.S. PER CAPITA SOFT DRINK CONSUMPTION GALLONS

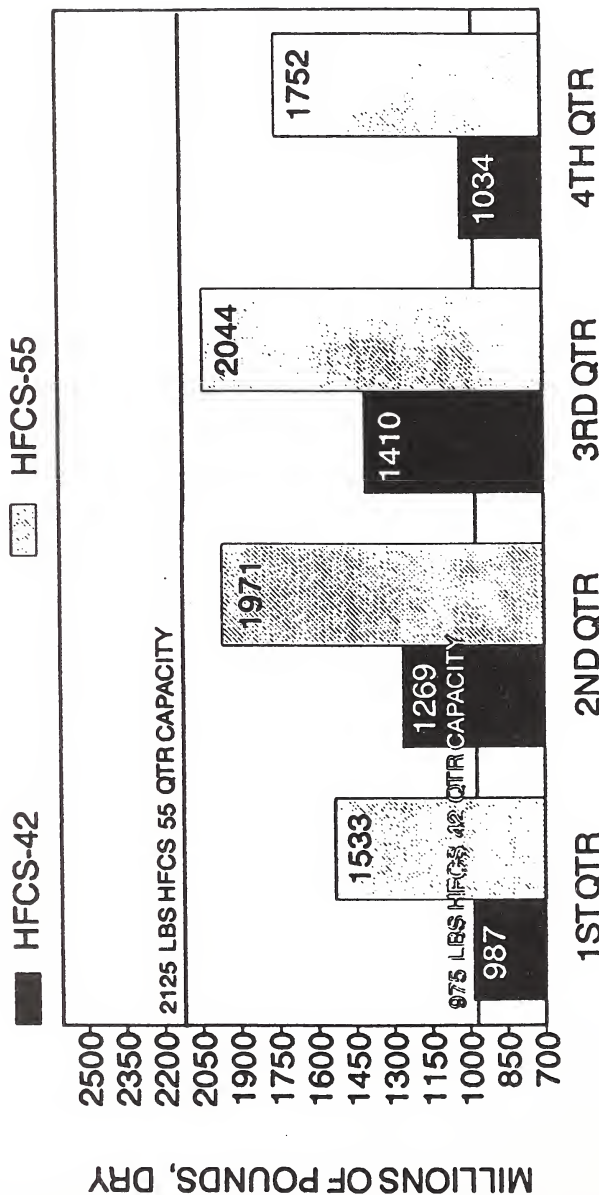


TOTAL U.S. THEORETICAL HFCS PRODUCTION CAPACITY* VERSUS DEMAND



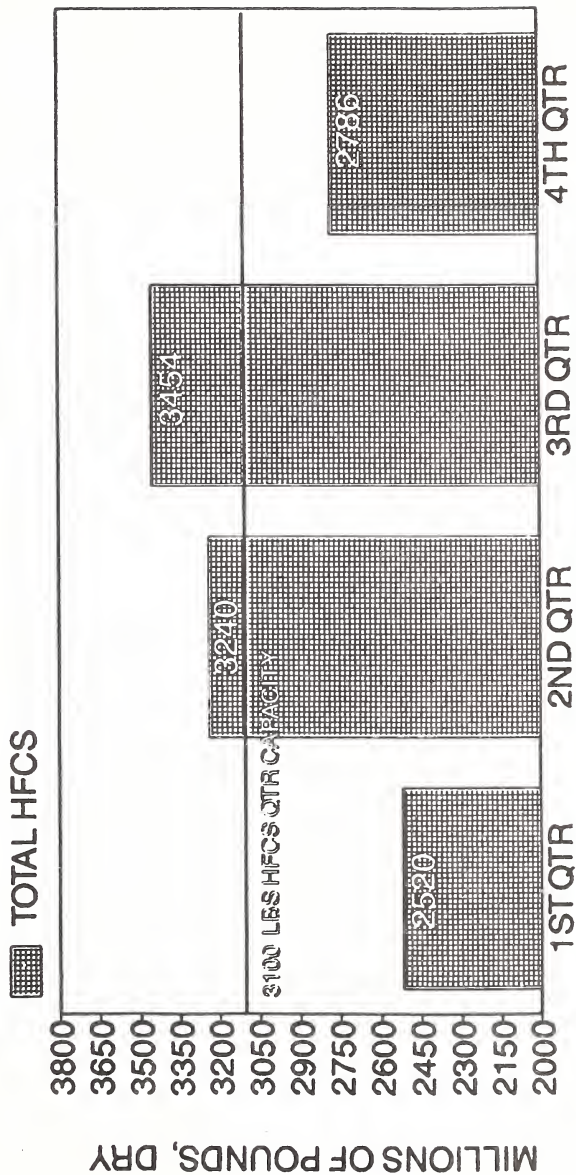
* INCLUDES CANADIAN, CAPACITY LESS CONSUMPTION IN CANADA
DOES NOT INCLUDE PLANT CAPACITY AT ADM MONTEZUMA OR STALEY MORRISVILLE.

1989 HFCS SEASONALITY THEORETICAL CAPACITY AND ESTIMATED DEMAND



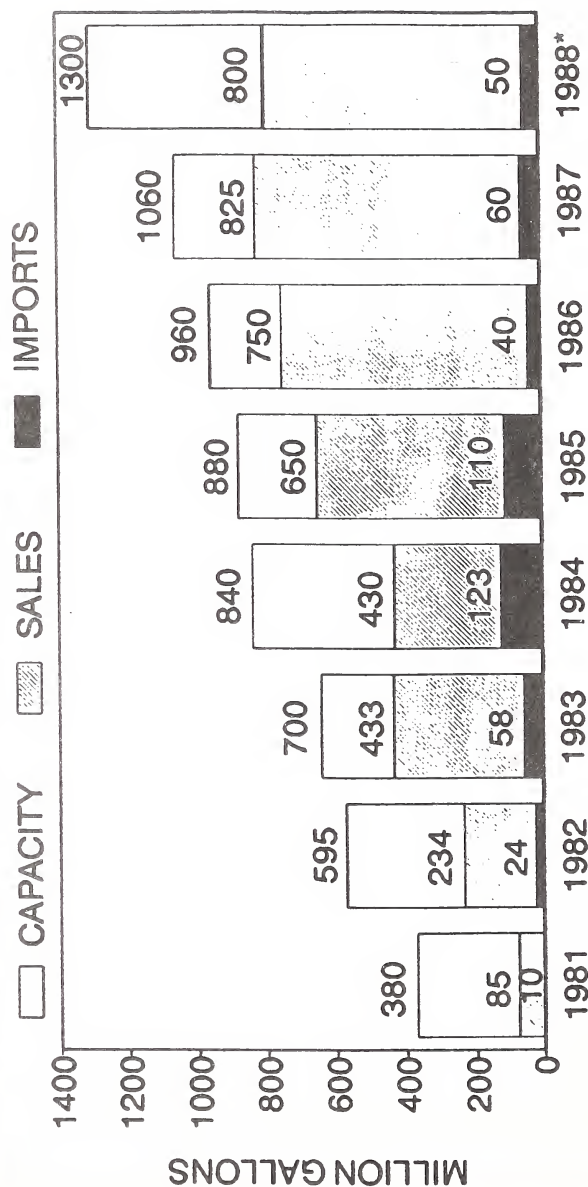
1989 HFCS SEASONALITY

TOTAL THEORETICAL CAPACITY AND ESTIMATED DEMAND



McKEANY-FLAVELL COMPANY, INC.

U.S. FUEL ETHANOL ANHYDROUS PRODUCTION CAPACITY**, SALES AND IMPORTS



* PROJECTED

** NAME PLATE CAPACITY

SOURCE: INFORMATION RESOURCES, INC.

1981 AND 1989 GROWTH IN CORN INDUSTRY ETHANOL PRODUCTION CAPACITY MILLIONS OF GALLONS

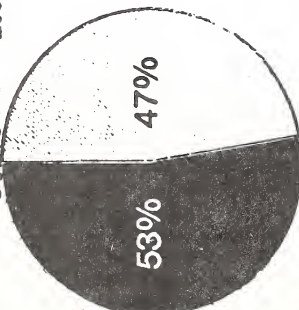
1981

380 MILLION GALLONS

CORN INDUSTRY

ADM-DECATUR 130
CEDAR RAPIDS 70

SUBTOTAL 200



OTHER SUBTOTAL 180



OTHER

SUBTOTAL 626

OTHER INCLUDES PRODUCERS SUCH AS PEKIN ENERGY, SOUTH PT ETHANOL, HIGH PLAINS, KYAGRI ENERGY, ETC.

* PROJECTED ** DRY MILLING

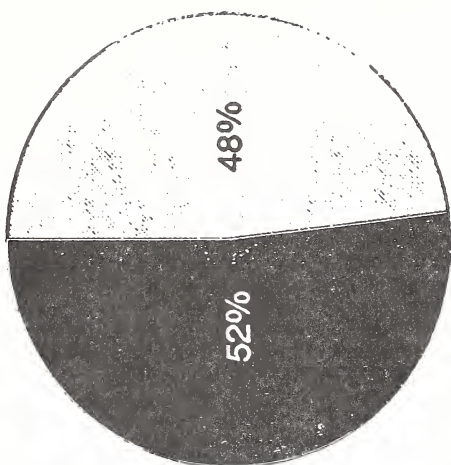
1989*

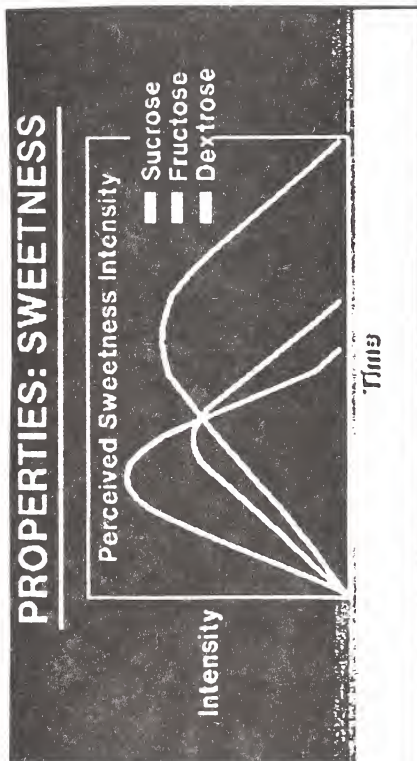
1.3 BILLION GALLONS

CORN INDUSTRY

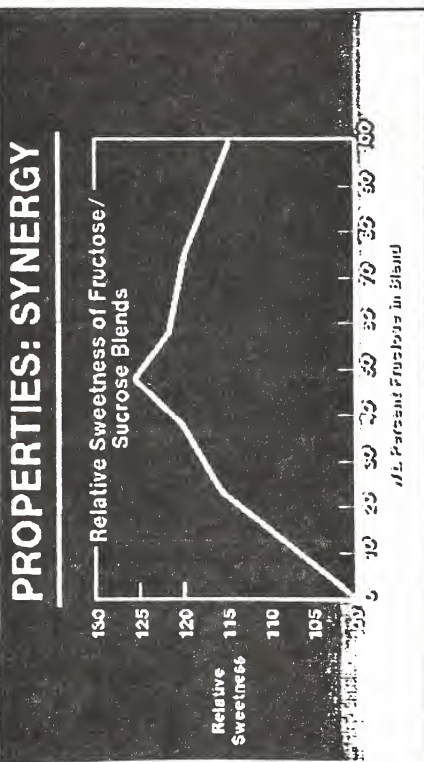
ADM-DECATUR 275
CEDAR RAPIDS 70
CLINTON 70
PEORIA** 175
STALEY-LOUDEN 40
MCP-MARSHALL 20
HUBINGER-KEOKUK 14
GRAIN PROCESSING 10

SUBTOTAL 674





Source: A. E. Staley Mfg. Company



Source: A. E. Staley Mfg. Company

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1988

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FOOD CHOICES: WHAT AND WHY

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David K. Guilkey, Pamela S. Haines, and Kathleen C. Reidy
University of North Carolina at Chapel Hill

I. Introduction

During this past decade, we have experienced a tremendous increase in our understanding of the role of diet in chronic diseases. The U.S. Department of Agriculture and the Department of Health and Human Resources developed U.S. Dietary Guidelines which have presented the American public with a number of diet and health messages:

- Eat a diet low in fat and high in fiber to decrease your risk of cancer.
- Eat a diet high in calcium to lower your risk of osteoporosis.
- Cut down on cholesterol, fats and saturated fats to decrease your risk of heart disease.
- Maintain ideal body weight to decrease risk of many health problems.
- Avoid too much sugar and sodium
- Eat a variety of foods.

Our research addresses three questions: Who is picking up on these messages and what is the consumption impact? Do women know how to translate nutrition messages into food behaviors? What kinds of factors are working against the implementation of these practices?

Our goal is to examine the changes in food consumption choices of American women in and during the 1977-85 period. Food groupings are defined to reflect fat and dietary fiber differentials to allow us to understand how shifts in consumption of different food groups relate to our nutrition and health concerns.

We also examine personal and household characteristics associated with food group consumption trends. This analysis considers the proportion of consumption trends attributable to shifts in the proportion of households with various personal, demographic, or household characteristics (e.g., the proportion of women who work), as well as the portion of food group trends attributable to changes in the effects of personal or household characteristics over time (e.g., educated women more likely to consume selected foods in 1985 versus 1977).

Long-Term Consumption Trends

Much of our previous understanding of trends in food consumption has been based on food disappearance data derived from production and domestic food use statistics. Historical surveys developed by the U.S. Department of Agriculture's Human Nutrition Information Service have allowed estimations of per capita food use over extended periods of time, nutrients available per capita for consumption, and the contribution of major and minor food groups [1-3]. Such research has shown that long-term (1909-80) trends in energy availability have not varied greatly but that the proportion of energy from fat has risen, energy from carbohydrates has declined, and energy from protein has remained constant. At the same time, meat and dairy sources have increased, offset by reductions in grain consumption [1]. Many of these trends conform closely with long-term trends in food consumption associated with income increases throughout the world [4]. Similar research using food disappearance data focusing on consumption trends in the past two decades suggests increases in low-fat milk, poultry, and fish have occurred concurrently with increased consumption of fats and oils and reduced consumption of whole milk [2]. Moreover, the proportion of fat intake from fats and oils has increased while that from meat, poultry, and egg products has declined [3].

II. Research Framework

We have conducted a series of analyses to determine changes in the food consumption of U.S. women aged 19-50 between 1977-78 and 1985-86 [5-9]. These studies use two nationally representative samples collected from the 48 coterminous states of the United States: the 1977-78 Nationwide Food Consumption Survey (NFCS 77) and the 1985 Continuing Survey of Food Intake by Individuals (CFSII 85). In each study we use the average daily food intake based on three days of dietary data.

Fat and dietary fiber composition data were used to subdivide the major food groups into more specifically defined high- and low-fat and fiber food groupings. For the analyses reported here we use 30 food groups which represent about 83 percent of the fat and 70 percent of the dietary fiber consumed by U.S. women during these two surveys.

III. Food Choice Trends

American women have made major changes in their diets in the period studied. It is important to define the measures used to study these changes. Per capita consumption reflects the average consumption of a particular food over the whole population. Per capita consumption takes account of two other measures, the number of people consuming a particular food as well as the amount of the food consumed per user. Between 1977 and 1985 more women were consuming foods from more different food groups but they were generally consuming smaller quantities within most food groups.

Per Capita Consumption Trends: A number of interesting trends appear in per capita consumption between 1977-78 and 1985 for U.S. women. As summarized in Table 2, per capita consumption of low-fat milk products, medium fat beef and pork, and higher fat grain mixed dishes increased by at least 10 grams per day, while comparable per capita decreases were observed for whole milk and the higher fat beef and pork products. In general, in many major food groupings, increases in per capita lower fat products were accompanied by decreases in higher fat items. For example, in dairy products, per capita increases in skim and low-fat milk were offset by declines in consumption of whole milk. Interestingly, very little change was observed in per capita consumption of either lower or higher fat cheeses.

Table 1. Foods characteristic of food groups

	<u>Groups</u>	<u>Representative Foods</u>
MILK		
	Lower fat	Low fat milk (2%, 1%, skim)
	Higher fat	Whole milk
BEEF, PORK, AND MIXED DISHES		
	Lower fat	Lean, trimmed, broiled beef/pork, chili, hamburger with ketchup on bun
	Medium fat	Cooked ground beef or patty (fat unspecified), cheeseburgers, lean or trimmed roast beef/pork chops; meat loaf
	Higher fat	Untrimmed roasts, steaks, short ribs, pork chops
POULTRY AND MIXED DISHES		
	Lower fat	Broiled or roasted chicken breast, skinned poultry
	Higher fat	Chicken with skin, fried/breaded/processed chicken
BREADS, WAFFLES, PANCAKES		
	Lower fat, higher fiber	Whole wheat and multigrain breads; corn tortillas
	Higher fat, lower fiber	White soft rolls, biscuits, cornbread, pancakes, waffles, french toast, sweet rolls, croissants
DESSERTS		
	Higher fat	Ice cream, cakes, cookies, pies, doughnuts, granola bars
SALTY SNACKS		
	Higher fat	Potato chips, saltine/snack crackers, corn/tortilla chips, popcorn with butter
GRAIN MIXTURES		
	Higher fat	Pizza, macaroni and cheese, spaghetti and meatballs, pasta salad, tacos, egg rolls

¹For a more complete and detailed description of the food groups used in this analysis, see Popkin, Haines, and Reidy.

Table 2. Changes in average food consumption levels of U.S. women, 1977-78 to 1985 (grams per capita per day, weighted)

Increase greater than 10 grams per capita per day:

Lower fat milk	(29.1)
Medium fat beef and pork	(11.7)
Higher fat grain mixed dishes	(27.4)

Increases of 5-10 grams per capita per day:

Lower fat poultry	(8.1)
Lower fat beef and pork	(8.9)
Higher fat desserts	(7.8)

Decreases of 5-10 grams per capita per day:

Eggs	(5.5)
Higher fat poultry	(7.4)
Higher fiber vegetables	(7.4)

Decreases greater than 10 grams per capita per day:

Higher fat milk	(42.3)
Higher fat beef and pork	(36.6)

Consumption increases in lower (8.9 gm) and medium (11.7 gm) fat beef and pork products were offset by large declines in higher (36.6 gm) fat beef and pork consumption. Poultry trends also moved in opposite directions with increases in per capita consumption of lower fat poultry (8.1 gm) and decreases in higher fat poultry (7.4 gm). Trends in consumption of luncheon meats and fish followed those seen for poultry and red meat with increased consumption in the lower fat categories and decreased consumption in the higher fat categories, but the changes were of a smaller magnitude for luncheon meats and fish. Per capita egg consumption showed a decline consistent with past trends.

While dairy and meat product per capita trends are consistent with selection of foods with more healthful characteristics, not all food group selection trends reflect this attitude. Little change was observed in a number of food groups which contribute to complex-carbohydrate and dietary fiber, such as low-fat, higher fiber bread products and ready-to-eat cereal products. Cooked cereals and other rice and pasta intakes declined slightly. Consumption of green and yellow vegetables declined slightly, as did per capita consumption of other vegetables.

Increases were observed in a number of food groups which contain hidden fat. Per capita increases in higher fat desserts, salty snack foods, potatoes, and grain-based mixed dishes (such as macaroni and cheese, pizza) reflect this trend.

Proportion of Food Group Users: Although interesting from the population perspective, examination of per capita trends alone obscures other consumption trends which may be of interest to educators or those planning population-based diet-health interventions. Specifically, these other food consumption trends of interest are shifts in the numbers of people consuming different food groups and changes in the amount of food consumed by those consuming a given food. Table 3 summarizes the largest changes seen in the number of women consuming food from different food groups. Increasing numbers of women are consuming a few lower fat foods including lower fat milks, lower fat, higher fiber breads, and lower fat poultry. However, increasing percentages are also consuming higher fat foods including higher fat cheeses, medium fat beef and pork, higher fat mixed grain dishes, and higher fat salty snacks. The largest percentage shift is the 43.1 percent decline in the number of women consuming higher fat beef and pork products.

Larger percentages of women consumed food from 22 of 30 food groups in 1985 than 1977-78. The largest percentage increases were for medium fat beef and pork (18.8 percent), grain mixed dishes (18.7 percent), lower fat milk (17.7 percent), lower fat beef and pork (16.4 percent) and lower fat poultry (15.5 percent). In 6 of these 22 food groups, despite larger proportions of women consuming some food from the group, a decline in per capita consumption occurred between 1977-78 and 1985. Examples include lower fat cheeses; legumes; higher fat, lower fiber breads; green and yellow vegetables; lower fiber salad (other) vegetables; and butter and/or margarine.

Of the food groups consumed by fewer women, six of eight represented higher fat foods including higher fat red meat, poultry, fish, luncheon meat, milk, and eggs categories; the others included higher fiber "other" vegetables, such as corn, mixed vegetables, lima beans, and pasta, rice, and cooked cereals.

Grams Per User: Despite mixed per capita trends and the general increase in the percentage of the population consuming food from selected food groups, grams of food consumed per user declined in 22 of 30 food groups between 1977-78 and 1985. In Table 4 we summarize these trends.

Often the grams per user trends suggest different information from per capita or percentage of users trends. For example, sizable declines in individual milk consumption indicate that although more women may be consuming lower fat dairy products and per capita consumption is rising, individual consumption has declined. The decline in per capita legume consumption does not result from shifts in the proportion of the population consuming legumes, but rather from the sizable decline in per user consumption. Although per capita consumption of lower fat fish nearly doubled between 1977-78 and 1985, this resulted from an increase in the percentage of women consuming lower fat fish, despite a decrease in the actual grams of low-fat fish consumed per user.

IV. Explaining Food Choice Trends

More detailed statistical analyses were used to examine the factors associated with changes in food consumption for these women. A set of personal and household characteristics was used to explain these changes in food consumption. The analysis focuses on the likelihood of consuming any food from a certain food group and the quantity of food consumed by users of each group.

The analysis shows that income, education, ethnic/racial background, region, and other standard demographic and socioeconomic factors explain significant cross-sectional variations in food group consumption at each point in time.

At the same time it is important to point out that the effects of these factors on food consumption decisions changed considerably between 1977 and 1985. In the seven-year period studied, changes in food consumption were explained mainly by women's behavioral changes. While there were shifts in the level and distributions of many explanatory variables or population characteristics, the impact on consumption trends of these population characteristic changes was very small. In contrast, changes in the effects of these demographic and socioeconomic characteristics had the largest impact on food consumption as women with the same socioeconomic characteristics changed their food consumption behavior between 1977 and 1985. In particular significant food consumption changes during this time were associated with changes in the effects of the education of female heads of the household, household demographic composition (number of children at home, presence of a male head, overall household size), and weight of the woman.

Probably the most dramatic shifts in consumption between 1977 and 1985 were associated with changes in education. We examine these changes by simulating the effect of an increase in one year of education for the average woman in 1985 and 1977. The impact of higher levels of education of the female household head were very different in 1985 from 1977. In Figure 1 we present the relationship between an additional year of education for women and food consumption. Many of the changes in the impact of additional education between time periods reflect a larger proportion of women selecting more healthful foods. For example, an additional 11 percent would be expected to select higher fiber vegetables and an additional 9 percent to consume higher fiber, lower fat bread products. An increased number of women would also be expected to consume higher fiber ready-to-eat cereals (3 percent), lower fat milk products (6 percent), and lower fat beef and pork (2 percent). A smaller proportion of women living in households with a more educated female head consumed higher fat items such as high fat poultry, eggs, and untrimmed beef and pork in 1985 than in 1977. The simulations also suggest that the changes in the impact of additional education of the female head of household were associated with increased numbers of women selecting some high-fat

Table 3. Changes in the proportion of U.S. women consuming selected food groups, 1977-78 to 1985 (percentage of population consuming, weighted)

Greater than 10% increase in percentage of population consuming:

Lower fat milk	(17.7)
Lower fat, high-fiber bread	(15.3)
Lower fat poultry	(15.5)
Lower fat beef and pork	(16.4)
Medium fat beef and pork	(18.8)
Higher fat cheese	(11.8)
Higher fat mixed grain dishes	(18.7)
Higher fat salty snacks	(12.6)

5-10% increase in percentage of population consuming:

Lower fat lunch meat	(5.9)
Lower fat fish	(8.9)
Butter or margarine	(5.8)
Higher fat desserts	(6.1)
Higher fat potatoes	(6.9)

5-10% decrease in percentage of population consuming:

Higher fat poultry	(8.5)
Higher fiber other vegetables	(6.3)

Greater than 10% decrease in percentage of population consuming:

Higher fat milk	(11.0)
Higher fat beef and pork	(43.1)

Table 4. Changes in consumption amounts for U.S. women, 1977-78 to 1985
(grams per user per day, weighted)

Increases of over 10 grams per user per day

Higher fat grain mixed dishes (29.1)

Increases of 5-10 grams per user per day

Higher fat desserts (6.7)

Decreases of 5-10 grams per user per day

Pasta, rice, cooked cereals (5.7)

Lower fat beef and pork (6.2)

Higher fat lunch meat (6.5)

Higher fiber vegetables (7.2)

Lower fiber vegetables (7.7)

Eggs (8.7)

Lower fat, higher fiber bread (9.8)

Green & yellow vegetables (9.4)

Decreases of over 10 grams per user per day

Higher fat poultry (11.3)

Lower fat fish (12.2)

Lower fat milk (16.9)

Lower fat cheese (17.8)

Legumes (20.5)

Higher fat beef and pork (24.5)

Higher fat milk (43.9)

items. For example, 26 percent more educated women would be predicted to consume high-fat salty snacks, and 25 percent more would be predicted to consume high-fat dessert items in 1985 than in 1977. In other words, if the average woman had an increased education in 1985, she was much more likely to consume salty snacks and higher fat desserts than in 1977.

As seen in Figure 2, the change in the impact of the education of the female household head also had positive and negative impacts on the grams-of-food-consumed decision. For example, at the population mean for female head education, a woman in that household would be more likely to consume more low-fat lunch meat (21 grams), more low-fat or skim milk (65 grams), and more high-fiber vegetables (39 grams), and less high-fat beef and pork (36 grams) and high-fat poultry (25 grams) in 1985 than in 1977. She could also be expected to consume greater quantities of high-fiber, low-fat breads as well as the low-fiber, high-fat breads, but less of low- and high-fat fish and legumes.

V. Conclusion and Implications

American women have made major changes in their diets between 1977-78 and 1985-86. On the average, they have decreased the grams consumed within most food groups. This includes reduced consumption of healthful low-fat choices such as legumes, as well as reduced consumption of higher fat foods such as higher-fat beef and poultry. Women have considerably increased the diversity of their diets and are much more likely to consume a number of lower fat foods. The change in likelihood of consuming high-fat foods was mixed. While there was a decreased likelihood of consuming high-fat beef, pork, poultry, and milk there was an increased likelihood of consuming a few high-fat foods including high-fat cheeses, higher fat mixed grain dishes, higher fat desserts and salty snacks.

As the associations between diet and disease become clearer, women may be on the forefront in adopting more healthful dietary practices. As the summary results show, in 1985 women were more likely to begin consuming foods from more different food groups, most often the low-fat food groups and relatively less likely to stop consuming foods from a few of the high-fat food groups. In addition, personal consumption practices are reflecting an overall reduction in intake across most food groups. The reduction in the quantity consumed in most food groups may reflect a heightened responsiveness to reduce intake to control obesity and promote health, may reflect methodologic differences between dietary measures between surveys, or some combination thereof.

Producers and educators might use this behavioral dichotomy to fine tune messages sent to potential food consumers. Not only can new consumers be encouraged to consume food from a product group, but within the group of product users, women can be encouraged to consume more or less, depending on the producer/educator perspective.

Results further suggest that commonly collected personal, socioeconomic, and demographic variables can be used to predict the likelihood of using different kinds of foods as well as the amount consumed per food group user. This information could help producers and educators to improve product market segmentation and help target messages to those segments of the population they wish to reach. To the extent that adult women influence food availability for other household members, improvement of message transferral to women will result in even greater sales and/or educational benefits.

Finally, the impacts of many of the personal and household characteristics of these women on the decision to consume as well as the quantity to consume decision have changed

Figure 1. Changes in proportion of women consuming different foods associated with increased education of female head of household, 1977-1985

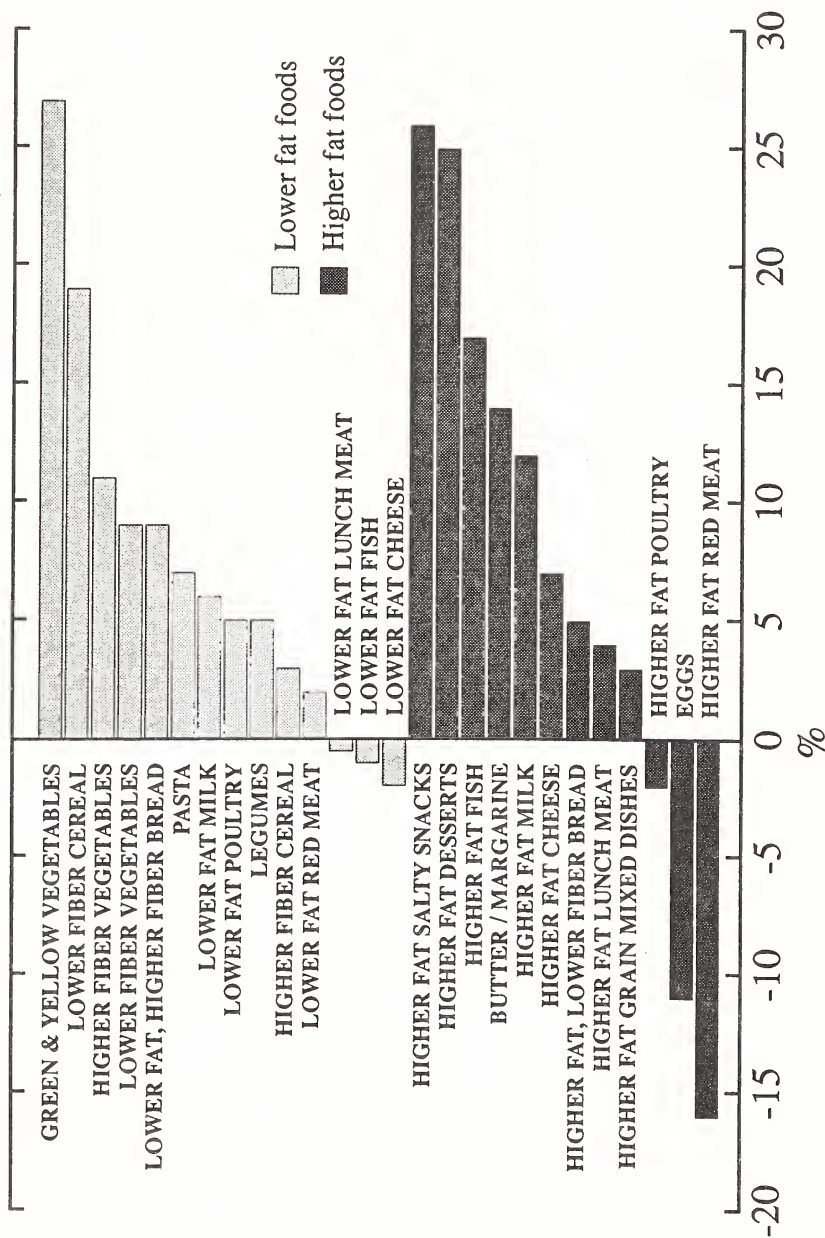
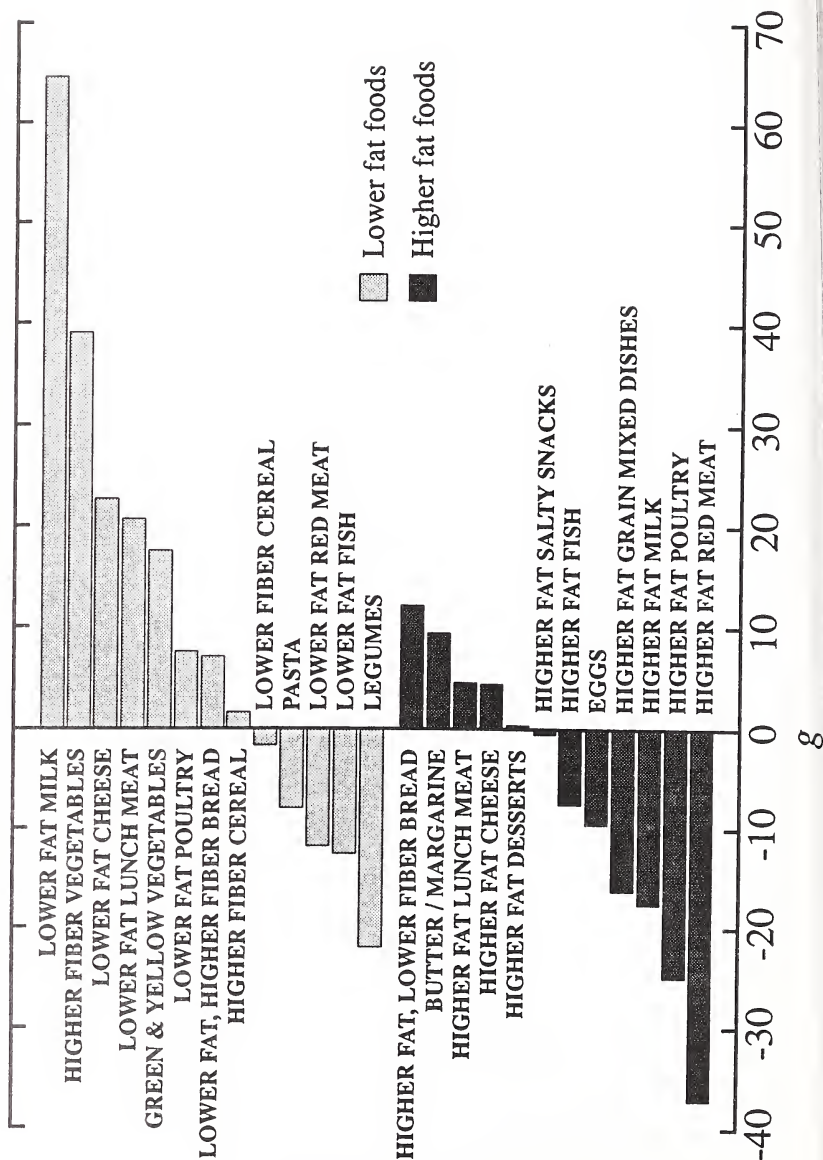


Figure 2. Changes in quantity of foods consumed associated with increased education of female head of household, 1977-1985



considerably between 1977 and 1985. It is important to be aware of these behavioral changes and focus on current behavioral analyses for understanding how to improve the diet of women and others in the U.S.

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EATING OUT: WHO AND WHERE

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A growing proportion of food consumption by American women is occurring away from home. People are eating out more often for many reasons. Some eat out because it is fun to eat out; others eat out because they are too busy to pack a lunch or there is little time for preparation of a meal at home. For many others, eating out accompanies doing something else. The business luncheon, a drink after work, supper with the children at the local Wendy's, or popcorn and raisinets at a movie are pictures of modern society on the go.

What does this trend mean for nutrition educators entrusted with providing the population with the best information available with which to make appropriate healthy food choices? What does it mean to those who market foods both for use within and outside the home? What does it mean for the individuals who are faced with new food selection options daily?

Our research addressed four basic questions. Could women be classified into eating patterns based on consumption experience across multiple food locations? What were the changes in at home and away from home consumption for women ages 19 to 50 between 1977 and 1985? Who were the women in each eating pattern and what were the identifying characteristics which would be helpful in targeting education, food or health programs or other marketing efforts to group members? Finally, what were the dietary consequences of membership in particular patterns of eating?

Subjects and Methods

The sample selected for analysis consisted of women between the ages of 19 and 50 who were surveyed as part of the 1977-78 Nationwide Food Consumption Survey (NFC77) and the 1985 Continuing Survey of Food Intake by Individuals (CSFII85). Both surveys selected samples from stratified area probability samples of noninstitutionalized households in the 48 coterminous United States. The NFC77 contains information from about 15,000 households and from 36,255 individuals in all age-gender groups. The CSFII85 surveyed women ages 19 to 50 and their children ages 1 to 5. The CSFII85 is a smaller sample containing 1,503 women in the first data collection wave.

The NFCS77 contained a one-day 24-hour dietary recall and two one-day food records for up to three consecutive days. In the CSFII85, up to six days of dietary recall data were available per woman which were collected longitudinally every two months. Since one study objective was to identify eating pattern trends between 1977 and 1985, eating patterns were defined as food intake behaviors averaged over three days. For the trends analysis, in order to reflect dietary data similar in number of days to that available in the NFCS77, three days of data were analyzed for each CSFII85 member. In 1985, recalls selected included data from the first data collection wave and a random selection of any two other recalls throughout collections waves two through six. In 1977-78, all three days of data were included in the sample.

For the eating pattern trends analysis, a multinomial logit trends analysis was conducted. The MLOGIT procedure in SAS was used to identify factors associated with the probability of presence in one eating pattern versus another. MLOGIT is a multinomial logit procedure used for the estimation of regression models with categorical dependent variables. The procedure produces estimates of the probability that a particular eating pattern will be selected over another pattern, and identifies independent variables which are statistically significant in determining the value of the probability. For the trends analysis, analysis files from both 1985 and 1977-78 were combined, and the explanatory model expanded to include dummy variables which took the value of 1 if the sample respondent was interviewed in 1985, and time-independent variable interaction terms. Independent variables included age, education and employment status of the female head of household, male vs. female headed households, single person household, numbers of children less than 5 years of age, household size, and household income as a percent of the poverty index.

Longitudinal analyses were conducted with the CSFII85 data to determine if multiple longitudinal observations per person improved statistical estimates relating eating patterns and both static and time varying independent variables. For the longitudinal eating patterns analysis, a generalized least squares correction was made to the multinomial logit procedure to control for multiple observations per person. For the longitudinal nutrient analysis where the dependent variables were of a continuous nature, a straight forward longitudinal random effects estimator was used using the statistical program HOTZTRAN. Nutrients examined included kilocalories, fat, saturated fat, cholesterol, sodium, potassium, calcium, copper, zinc, dietary fiber, folacin, carotenes and Vitamins A, C and E, nutrient densities for the above nutrients, and finally, fat, carbohydrate and protein as percents of energy intake.

Eating Pattern Development

With the help of cluster analysis, women were classified into eating patterns based on consumption of similar percents of food energy consumed at each of eight possible food consumption locations. Locations included at home, from home, restaurants, cafeteria, fast food (restaurants where the food was ordered and picked up at a counter or drive up window), vending machines, guest at someone else's home, and some other place. Ten distinct multidimensional eating patterns were identified. A brief two primary location characterization of each eating pattern follows in Table 1.

Table 1. Primary Eating Pattern Characteristics

<u>Name</u>	<u>% Energy at Home</u>	<u>% Energy other location</u>
Home All	100	0
Home Most	87	LT 4
From Home	67	8 From Home
Rest Home	31	47 Restaurant
Home Rest	61	24 Restaurant
Fast Home	32	34 Fast Food
Home Fast	67	30 Fast Food
Cafeteria	54	27 Cafeteria
Guest	43	36 Guest
Other	42	35 Other

While most patterns contained substantial proportions of foods eaten at home, away from home patterns were dominated by intake at one or more away from home locations. In addition to patterns designated as From Home, Cafeteria, Guest and Other which contained large proportions of energy from each of these locations, respectively, two restaurant and two fast food eating patterns were identified. Patterns named Home Rest and Home Fast contained approximately two thirds of energy at home, with the remaining on third predominantly eaten at either restaurants or fast food locations. In contrast, the at home versus away from home proportions of the Rest Home restaurant eating pattern were reversed; one third of energy was eaten at home, approximately one half eaten in restaurants. In the Fast Home fast food eating pattern, one third of energy was consumed at home, one third in fast food locations, and the remainder distributed across the remaining away from home locations.

Results

Descriptive results:

The percent of women eating anything away from home over a three day period differed considerable between 1977 and 1985. In 1977, a third of all women consumed food only at home; but this number was reduced to 13 percent by 1985. That is, in 1985, 87 percent of sampled women ate away from home at some time during the three day period. See Table 2.

Table 2. How many women ate only at home?

Percent of women eating everything at home versus
home plus away, 3 days, 1977 and 1985

	<u>1977-78</u>	<u>1985-86</u>
Ate only at home	33.4%	13.3%
At home plus away	66.6%	86.7%

Where women ate also differed between 1977 and 1985. As seen in Table 3, the percent of women eating out at each of the possible locations increased between 1977 and 1985. The largest increases were seen in numbers eating fast food, (22 to 37 percent), vending food (6 to 19 percent) and those indicating "other" kinds of eating locations (15 to 48 percent). In 1985, only 10% of our "other" meals were at school, day care or community feeding locations. The next question for survey designers is where women are eating when they indicate "other" locations.

Table 3. Where did women eat?

Percent eating at each location, 3 days,
Women ages 19-50, 1977-78 and 1985-86

	<u>1977-78</u>	<u>1985-86</u>	<u>% difference</u>
At Home	100	100	0
From Home	22	30	+8
Restaurant	26	33	+7
Fast Food	22	37	+15
Cafeteria	13	16	+3
Vending	6	19	+13
Guest	20	29	+9
Other	15	48	+33

Types of meals eaten away from home are also of interest. Table 4 provides estimates of the percent of women indicating consumption of particular meals or snacks by location in 1985.

Table 4. Percent of women eating food by location and type of meal,
3 days, Women ages 19-50, 1985

<u>Location</u>	<u>Breakfast</u>	<u>Lunch</u>	<u>Supper</u>	<u>Snack</u>
At Home	93	70	95	92
From Home	5	20	4	13
Restaurant	7	17	17	12
Fast Food	6	23	10	11
Cafeteria	5	9	4	5
Vending	2	6	1	14
Guest	3	8	12	11
Other	11	20	6	36

Multivariate Results:

A shift to away from home consumption was also seen in the multivariate analyses. The adjusted trends control for differences in proportions of personal and demographic characteristics across eating patterns. Between 1977 and 1985, the percent of women classified within the Home All category (all

food eaten at home) declined 66 percent--from 36 to 12 percent. Concurrently, women in each of the other eating patterns increased. The largest category of women in 1985 was the Home Most group, up slightly from 1977. Numbers of women classified within the two restaurant categories increased 60 percent; numbers classified within the two fast food categories increased 121 percent.

A number of personal and demographic factors have been suggested as contributing to the shifts to more frequent away from home consumption over the last 20 years. Increases in per capita disposable income have contributed to greater overall food expenditures and increases in the percentage of the food dollar spent away from home. Demographic changes, such as shifts to smaller households, have also contributed to the increase. An increase in the numbers of women employed outside the home has had significant impacts not only on the away from home eating patterns of these women, but also their family members, to the extent to which women are still gatekeepers and responsible for provision of family food.

In this study, women with market employment consistently favored away from home eating patterns over the predominantly at home patterns. For employed female heads of households, Rest Home and Cafeteria eating patterns were preferred to either of the fast food or the Home Rest categories; the fast food and Home Rest categories were preferred to From Home.

Increasing levels of income were also associated with a reduced likelihood of following the Home All pattern relative to all others. In addition, restaurant consumption, particularly for women in the Rest Home eating pattern, was preferred by women in higher income households when compared with all other choices.

In contrast, women at older ages were more likely to fall into the Home All eating pattern than younger women. In addition, of the away from home eating patterns, Home Most, From Home and Cafeteria were preferred by older women relative to either of the fast food categories or Rest home. Younger women were consistently more likely to fall into the Fast Home pattern than older women, although this difference was smaller in 1985.

Women in male headed households and women with children were more likely to fall into the Home All, Home Most, From Home and Guest categories than into the restaurant, fast food or Other eating patterns.

On weekends, women were more likely to be in the Guest, Home All or Rest Home eating patterns than on a weekday. Concurrently, women were less likely to be in the From Home, Cafeteria, and Other eating pattern on weekends.

Characteristics of Selected Eating Patterns

Each eating pattern can be described in terms of the mean values of selected demographic characteristics found within a particular pattern. For example, the predominantly at home eating patterns contained the highest percent of women with 12 or fewer years of education (69 percent of Home All and 68 percent of Home Most women completed 12 or fewer years of education). These patterns also included the highest percentages of women with preschool age children and the most Blacks. When compared with other eating patterns,

women in these patterns were least likely to be single, employed outside the home, or to have incomes in excess of 185 percent of the poverty level.

In contrast, the Rest Home eating pattern contained the highest percentages of (1) employed women, (2) women in higher income families, (3) single women, and (4) white women. This group contained the smallest percentages of Blacks, women with less than 12 years of education and women in households with both male and female household heads.

The fast food eating patterns contained the highest percentages of younger women and women who had relatively fewer preschool age children. The low percent with preschool age children was second only to the few children seen of women in the "Other" eating pattern.

The Cafeteria eating pattern contained the highest percentages of single and employed women. These women were more likely to be older and more highly educated.

The Other eating pattern contained high percentages of women who were single (second only to the Cafeteria group), and women in high income families (second to percentages in Rest Home). Women in the Other eating pattern had the fewest preschool age children of any eating pattern.

Additional Targeting

For targeting education and intervention efforts, one can also describe composition of the eating patterns by examining the proportion of women with a given trait that fall into selected eating patterns. See Table 5 for women surveyed in the 1985 CSFII. For example, employed women were far less likely to fall into either of the eating patterns dominated by at home consumption (25 percent of all employed women were in either Home All or Home Most versus 56 percent of all women not employed outside the home). Similarly fewer higher income (29 vs 55 percent), single person (14 vs 40 percent) and white women (35 vs 55 percent) fell into the at home eating patterns than did women in lower income, more than one person, and Black households.

In contrast, higher percentages of employed vs unemployed women (38 vs 21 percent) higher versus lower income (36 vs 20 percent), single versus multiple person households (37 vs 30 percent), and white vs Black (32 vs 22 percent) women were found in the restaurant and fast food eating patterns.

Few differences were found in the Guest eating pattern in the percent of women categorized by employment status, income, family size or race. As might be expected, slightly more employed than non employed women were found in the From Home and Cafeteria eating patterns (15 vs 7 percent). This was also true for higher versus lower income (12 vs 9 percent), single versus multiple person households (17 vs 11 percent), and white versus Black women (12 vs 8 percent).

Finally, more of the employed (12 vs 6 percent), higher income (12 vs 5 percent), single woman (15 vs 9 percent), and white versus Black (10 vs 7) women were found within the Other eating pattern.

Table 5. Distribution of women of selected characteristics across eating patterns;
Unadjusted values, women ages 19-50, 3 days, 1985 CSFII

N	--Percent--									
	Home ALL	Home Most	From Home	Rest Home	Rest Home	Fast Home	Fast Home	Cafeteria	Guest	Other
Employed	599	5 ^{1,2}	20	9	9	12	8	9	6	10
Unemployed	462	25	31	4	4	7	3	7	3	12
Income GT 185%	719	8	21	7	9	12	7	8	5	11
Income LE 185%	390	23	32	6	3	6	4	7	3	11
Single Person HH	72	1	13	4	11	13	7	6	13	15
HH GT 1	1037	14	26	7	6	10	6	8	4	10
White	957	11	24	7	7	11	6	8	5	11
Black	110	21	34	3	2	6	6	8	5	10
Education LE 12	689	15	27	6	5	9	6	8	4	10
Education GT 12	420	11	21	7	9	11	5	9	6	12
No Preschool Children	302	11	23	7	7	11	7	8	5	11
Preschool Children	827	20	29	7	6	8	4	7	3	11
Age 19-34	601	13	25	6	6	11	7	9	4	10
Age 35-50	506	14	25	8	7	9	5	7	6	10
Male Head HH	689	14	26	7	6	10	6	8	4	11
Female Head HH	280	13	23	4	8	11	6	9	7	10

¹ Eg. 5 percent of employed women were in the Home All eating pattern; 25 percent of non employed women were in Home All.

² Row total percentages may not sum to 100% due to rounding.

Dietary Differences Across Eating Patterns

Dietary intakes of women differed by eating patterns, even when the multiple factors affecting intake were controlled for in multivariate analyses. Eating patterns differed in absolute quantities of nutrients consumed, nutrient densities, and the percent of energy contributed by fat, carbohydrate and protein. Table 6 summarizes some of the multivariate results obtained from longitudinal analyses of the 1985 CSFII data.

Women in the Home Rest and Home Fast (the restaurant and fast food categories with greater levels of at home consumption) consumed the greatest absolute intakes of energy, fat, saturated fat, sodium, cholesterol, potassium, calcium, copper and zinc. Women in the Home Rest restaurant pattern consumed approximately 13 percent more energy, fat, saturated fat, cholesterol and sodium than did women who ate all food at home. Intakes of women in the Home Fast fast food eating pattern were even greater. They consumed approximately 16 to 22 percent more energy, fat, saturated fat, cholesterol and sodium than women who ate everything at home. At opposite levels of intake, women in the Home All, From Home, Other and Fast Home eating patterns consumed lowest levels of energy, fat and saturated fat.

A comparison between the two fast food eating patterns is interesting. In multivariate analyses, the Fast Home eating pattern, (the one with lower at home consumption and away from home intake distributed between fast food locations and all other away from home sources) was associated with the lowest intakes of fat, saturated fat, cholesterol, sodium, potassium, calcium, copper, zinc, folacin, carotene and Vitamin C. In contrast, the Home Fast eating pattern was associated with the greatest intakes of energy, fat, saturated fat, cholesterol, sodium, potassium, calcium, copper and zinc. This comparison suggests that there are clearly additional factors which need to be identified to help explain why and how women make the food selection choices they do within eating patterns defined by locations of consumption.

The two eating patterns dominated by restaurant and fast food consumption (Rest Home and Fast Home), as well as the Cafeteria eating pattern had the highest percentages of energy from fat (42.2, 39.0 and 40.7 percent, respectively), and the highest total fat nutrient densities. The lowest percent of energy from fat and lowest fat nutrient densities were observed within the From Home eating pattern. Cholesterol nutrient densities were lower (by 9 to 17 percent) than densities of the Home All group in five of nine eating patterns.

Many of the nutrient densities were lower in the away from home dominated eating patterns than in the at or from home dominated patterns. While the restaurant and fast food dominated eating patterns (Rest Home and Fast Home) were particularly lower in densities of calcium (18 and 14 percent), dietary fiber (17 and 19 percent), folacin (10 percent), and Vitamin C (25 and 27 percent), many of the other eating patterns also exhibited reduced nutrient densities when compared to intakes of women in the Home All group.

Discussion and Conclusions

Our research has indicated that significant shifts in eating patterns have occurred between 1977 and 1985. Fewer women consume all food at home, thus

Table 6. Nutrient Density Differences Across Eating Patterns,¹
Percent differences from Home All mean, women 19-50, 1985 CSFII

	<u>Total fat/ 1000 Kcal</u>	<u>Saturated fat/ 1000 Kcal</u>	<u>Cholesterol/ 1000 Kcal</u>	<u>Sodium/ 1000 Kcal</u>	<u>Potassium/ 1000 Kcal</u>
--Percent--					
Home Most	2			-8.4	
From Home	-5.5 ³	-6.2	-9.3		
Rest Home	6.9	3.1	8.0		
Home Rest					
Fast Home	3.6		-15.2	-8.6	-15.1
Home Fast		7.1			
Cafeteria	5.3		-10.9		
Guest			-10.0	-11.1	
Other		-3.1	-17.1	-8.7	-10.7
Mean intake:					
Home All	39.5 gm	14.6 gm	198 mg	1691 mg	1561 mg
	<u>Calcium/ 1000 Kcal</u>	<u>Zinc/ 1000 Kcal</u>	<u>Dietary Fiber/ 1000 Kcal</u>	<u>Folacin/ 1000 Kcal</u>	<u>Vitamin C/ 1000 Kcal</u>
--Percent--					
Home Most				-2.7	-9.8
From Home	-6.1		13.2	14.9	
Rest Home	-18.2		-17.6	10.9	-25.9
Home Rest					
Fast Home	-14.1	-6.7	-19.8	-10.4	-27.7
Home Fast			-12.8	-6.1	-18.6
Cafeteria	-8.2				-14.7
Guest	-11.4	-6.8	-9.6	-10.1	-20.6
Other	-10.9	-10.5	-11.6	-7.7	-15.4
Mean intake:					
Home All	436 mg	6 mg	8.1 gm	145 mg	62 mg

¹Results are obtained from multivariate analyses of the 1985 CSFII data.

²Blanks indicate eating pattern intake levels not statistically different from Home All mean.

³For example, the nutrient density of fat intake for women in the From Home pattern was 5.5 percent lower than for women in the Home All pattern.

many more consume at least some food away from home. In particular, growing numbers of women can be classified into eating patterns dominated by restaurant, fast food, and other (not defined) sources of consumption.

Women more likely to be found in away from home eating patterns include those who are employed outside the home, those in higher income households, single women, younger women, and those with fewer numbers of preschool age children. In contrast, women more likely to be classified into eating patterns dominated by at home consumption tend to be those who are not employed outside the home, those in lower income households, those in households with both male and female household heads, those with more younger children, Blacks, and women with high school or less education.

The dietary implications of classification by eating pattern are varied. While women eating all food at home consumed fewer calories than did women in 8 of 9 other eating patterns, dietary consequences of macro- and micro- nutrient intake are not always in the expected direction. For example, diets of women in the From Home eating pattern might be defined as the "healthiest". Energy intakes were similar to those of women eating all food at home. Fat as a percent of energy was about 30 percent, and fat and saturated fat nutrient densities were the lowest of all eating patterns. Dietary fiber, folacin and vitamin C levels were highest of all eating patterns.

Women in many of the away from home patterns (Home Rest, Home Fast), consumed more energy and fat, but also more micronutrients than did women in the at home dominated patterns. But, women classified in the restaurant dominated pattern (Rest Home) consumed more fat and cholesterol but considerably lower levels of most vitamins and minerals than women eating at or from home. Women classified in the Fast Home eating pattern consumed only slightly more energy than did women eating everything at home, but had lower nutrient densities of cholesterol, sodium, dietary fiber and all mineral and vitamins studied than did women in the at home dominated eating patterns.

Implications for those marketing nutrition information are mixed. Patterns of eating can be defined taking multiple sources of food consumption into consideration. Eating patterns can be characterized by personal and demographic characteristics. Thus, eating patterns might be used as marketing segments to define and target nutrition messages. Distinct eating patterns have quite different nutrient intake profiles, so targeted nutrition messages might be an improved method with which to modify fat, dietary fiber and micronutrient intakes. It is clear that identification of a single source of consumption is insufficient to segment women. At the very least, levels of at home and the primary source of away from home consumption are necessary for classification.

As societal trends continue to favor greater levels of female employment and delayed childbearing, it is imperative to understand the environments in which women select and consume foods. The development of patterns of eating has been useful in not only identifying shifts in eating patterns between 1977 and 1985, but also has allowed determination of the characteristics of women within eating patterns, and the extent to which such patterns have contributed to dietary intake differences for fat, dietary fiber, and many of the nutrients important in defining chronic disease risk.

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WHERE'S THE FAT? WHERE'S THE FIBER?

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In response to growing evidence about the relationships between diet and chronic diseases such as heart disease and cancer, organizations such as the National Cancer Institute, the American Heart Association, and the American Cancer Society have made specific quantitative recommendations about how much fat and how much fiber Americans should be eating (1-3). More general dietary advice about these nutrients has been suggested by the U.S. Departments of Agriculture (USDA) and Health and Human Services (HHS), in their Dietary Guidelines for Americans (4).

Americans appear to have altered their diets in response to these health risks; fat intake has been decreasing in recent years. In the 1977-78 Nationwide Food Consumption Survey (NFCS), the mean intake of total fat for women 19 to 50 was about 73.9 gms (5), whereas in the 1985 Continuing Survey of Food Intakes by Individuals (CSFII-85), the mean intake for women aged 19 to 50 was 63.1 gms (6). In NFCS, the mean percentage of calories from fat for women 19 to 50 was about 41.3 (5), whereas in CSFII-85, the mean percentage of fat from calories for women 19 to 50 was 36.8 (6).

While there has been improvement since 1977-78, not all women are meeting levels for fats and fiber recommended by many authorities (Table 1). In the CSFII-85, 38.5 percent of the women consumed diets with 35 percent or less of calories from fat; only 14.3 percent of women consumed diets with 30 percent or less of calories from fat. For saturated fat, 14.0 percent of women consumed diets with 10 percent or less of calories from saturated fat. For cholesterol, 62.0 percent of women consumed diets with 300 mg or less of cholesterol. For fiber, 19.3 percent of women consumed diets with 15 or more gms of fiber.

In order for health educators and nutritionists to provide effective advice to women on how to reduce fat and increase fiber intakes, knowledge of which foods are major sources of these nutrients in women's diets is needed. Also important is knowledge about which foods account for most of the differences in fat and fiber intake in women: how do eating patterns differ between women with lower fat and higher fiber diets compared to women with higher fat and lower fiber diets? Since the dietary practices of high and low SES individuals differ significantly, information on the major sources of fat and fiber for high and low income women would be useful. This research attempts to fill these information gaps. Finally, what implications do these results have for the content of nutrition education messages?

METHODS

Data used for this research came from USDA's Continuing Survey of the Food Intakes by Individuals, 1985. This survey collected dietary and other information from a sample of women, aged 19 to 50, representative of the conterminous 48 states. The women were asked to report what they had eaten on a particular day six times over the period of a year. In our analyses, we used the 1,032 women who reported their diets for at least four different days. For these women we constructed a detailed set of variables describing what they ate in terms of 89 food groups. Every food which was consumed was categorized into one of these 89 food groups. We performed much of our analyses on a smaller set of food groups: a 33 food group system. This food group system was built on foods as they are eaten rather than their components. Thus, many foods which were eaten together in mixtures are categorized into mixtures food groups rather than as their component parts. For example, a hamburger sandwich is a "beef mixture," rather than beef, bread, lettuce, tomato, and sauce. The group of foods we called "mostly grain and vegetable mixtures" included foods like pizza, macaroni and cheese, and Mexican and Oriental mixtures.

In our analyses we then used these data on the consumption of individual food groups to determine which food groups were major sources of fat and fiber in the diet. Multiple regressions were used to determine which food groups were most responsible for differences in fat and fiber intakes among the women in the sample. We then examined in more detail how food groups were used, for example, how often and how much, by women with higher fat or fiber intakes versus women with lower fat or fiber intakes.

We distinguished between foods as sources of nutrient and foods as they explained differences in nutrient intake. For example, a food could contain a lot of a nutrient and be eaten in the same way throughout the population. This food would then be a major source of that nutrient in the population, but would not explain much of the differences in nutrient intake among individuals in the population. Both types of information can be useful in the design of effective nutrition education messages. Food groups which account for differences in nutrient intakes may be more amenable to change than those which are major sources but whose use does not vary significantly across subgroups of the population. A food which is eaten by nearly all the population may reflect a widespread and deep cultural preference for that food which may be difficult to change. A food which is eaten by only part of the population may reflect a weaker cultural preference for that food which may be easier to change. However, whether this is true would have to be verified by other information describing that population's food preferences and willingness to make specific dietary changes. Furthermore, findings for a population are useful for general planning purposes, but the intervention, as always, must be tailored to be appropriate and acceptable to the individual.

RESULTS

Total Fat

The mean daily fat intake of the CSFII-85 women was 63.1 gms. Since fat is widely dispersed in our foods, we found that many different foods contributed to the sample's total fat intake. Mostly grain and vegetable mixtures; meat, fish, and poultry mixtures; beef; sweet grain products (e.g. cake, cookies, pie, pancakes, doughnuts); and regular salad dressing contributed most to total fat intake. These foods each contributed 4.5 to 5.1 gms of fat per

day, 7.2 to 8.2 percent of the total fat consumed (Table 2). These five foods accounted for a total of 38.4 percent of the fat consumed.

The foods which were most important in explaining differences among the women in their fat intake were the same, but in a somewhat different order: sweet grain products; regular salad dressing; mostly grain and vegetable mixtures; meat, fish, and poultry mixtures; and beef.

We compared the actual consumption of these foods for women with higher fat diets versus women with lower fat diets. Women with higher fat diets were those in the highest quartile of overall fat consumption for the entire sample; their diets averaged 95.8 gms of fat per day (40.1 percent of calories from fat). Women with lower fat diets were those in the lowest quartile of overall fat consumption; their diets averaged 34.7 gms of fat per day (32.1 percent of calories from fat). We then examined the mean frequency of eating each food group; the mean serving size of the food group when it was eaten; and the mean fat density of that food, i.e. how much fat was present in a 100 gm serving of that food group. This density measure reflects the fact that a different mix of foods with a different average nutrient composition might have been consumed by those with the lower fat diets versus those with the higher fat diets. For example, women with higher fat diets may have chosen richer cakes, cookies, and pies than women who had lower fat diets.

For these five major fat sources, the mean frequency of use and the mean serving size when used were always lower in women with lower fat diets as compared to women with higher fat diets (Table 3). For example, women with lower fat diets ate sweet grain products an average of 0.9 times over four days, 96 gms each time. Women with higher fat diets ate sweet grain products an average of 2.9 times over four days, 280 gms each time. The amount of fat per 100 gm serving did not differ between the two groups for sweet grain products, regular salad dressing, mostly grain and vegetable mixtures, or meat, fish, and poultry mixtures. However, beef eaten by women with the higher fat diets was significantly fattier than beef eaten by women with the lower fat diets.

Saturated Fat

The mean daily saturated fat intake of the CSFII-85 women was 22.9 gms. Fewer foods were sources of saturated fat, since saturated fats occur predominantly in animal foods and little in plant foods. The major sources were natural, processed cheeses, and cream; beef; mostly grain and vegetable mixtures; meat, fish, and poultry mixtures; whole and evaporated milks; lunch meats and bacon; butter and margarine; sweet grain products; and dairy and frozen desserts. These foods each contributed 1.1 to 2.3 gms of saturated fat per day, 4.8 to 10.3 percent of the total saturated fat consumed (Table 4). Nine food groups accounted for a total of 65.2 percent of the saturated fat consumed.

The major food groups which explained differences among the women in their saturated fat intake were the same, but again, their order was somewhat different: whole and evaporated milks; natural, processed cheeses and cream; beef; mostly grain and vegetable mixtures; sweet grain products; meat, fish, and poultry mixtures; lunch meats and bacon; dairy and frozen desserts; and butter and margarine.

We compared the actual consumption of these foods for women with higher saturated fat diets versus women with lower saturated fat diets. Women with higher saturated fat diets,

those in the highest quartile of saturated fat consumption for the entire sample, consumed an average of 36.0 gms of saturated fat per day (15.3 percent of calories from saturated fat). Women with lower saturated fat diets, those in the lowest quartile of saturated fat consumption, consumed an average of 12.0 gms of saturated fat per day (11.0 percent of calories from saturated fat). Again, we examined the mean frequency of eating each food group; the mean serving size of the food group when it was eaten; and the mean saturated fat density of that food, i.e. how much saturated fat was present in a 100 gm serving of that food group.

For these nine major saturated fat sources, the mean frequency of use and the mean serving size when used were always lower in women with lower saturated fat diets as compared to women with higher saturated fat diets (Table 5). For example, women with lower saturated fat diets drank whole milks an average of 1.2 times over four days, 289 gms each time. Women with higher saturated fat diets drank whole milks an average of 2.8 times over four days, 893 gms each time. Saturated fat densities of most of these food groups did not differ for the two groups of women. However, beef chosen by women in the highest saturated fat quartile contained more saturated fat than beef chosen by women in the lowest quartile. Women with the higher saturated fat diets also chose more butter (rather than margarine) than did women with the lower saturated fat diets.

Cholesterol

The mean daily cholesterol intake of the CSFII-85 women was 280 mgs. Eggs contributed 87 mgs of cholesterol per day, 31.1 percent of the total cholesterol consumed (Table 6). Beef contributed 26 mgs of cholesterol per day; meat, fish, and poultry mixtures 24 mgs of cholesterol per day; and mostly grain and vegetable mixtures 20 mgs of cholesterol per day. These four food groups accounted for a total of 56.1 percent of the cholesterol consumed.

The food which explained most of the differences among women in cholesterol intake was eggs. Other foods which also explained differences among the women were: beef; poultry; cured, organ, and miscellaneous meats; mostly grain and vegetable mixtures; meat, fish, and poultry mixtures; fish; and sweet grain products.

Women with diets in the highest quartile of cholesterol consumption averaged 474 mgs of cholesterol per day. Women with diets in the lowest quartile of overall cholesterol consumption averaged 129 mgs of cholesterol per day.

For eggs and for other major cholesterol sources, the mean frequency of use and the mean serving size when used were always lower in women with lower cholesterol diets as compared to women with higher cholesterol diets (Table 7). For example, women with lower cholesterol diets ate eggs an average of 0.2 times over four days, 42 gms each time. Women with higher cholesterol diets ate eggs an average of 2.1 times over four days, 179 gms each time. Cholesterol density of cured, organ, miscellaneous meats; mostly grain and vegetable mixtures; meat, fish, and poultry mixtures; and sweet grain products was higher in women with higher cholesterol diets than in women with lower cholesterol diets. This probably reflects greater use of liver and greater use of eggs in the mixed dishes and baked goods for women with higher cholesterol diets.

Fiber

The mean daily fiber intake of CSFII-85 women was 10.9 gms. Vegetables other than potatoes contributed 2.6 gms of fiber per day, 23.9 percent of the total amount of fiber consumed (Table 8). Bread, fruits, and white potatoes each contributed 1.0 to 1.4 gms of fiber per day, 9.3 to 13.2 percent of the total fiber consumed. These four food groups accounted for a total of 57.1 percent of the fiber consumed.

The foods which were most important in explaining differences among the women in fiber intake were vegetables other than white potatoes; fruits; white potatoes; ready to eat cereals; soups (which included bean soups and other dried beans); meat, fish, and poultry mixtures; nuts and seeds; and bread.

The diets of women in the highest quartile of fiber consumption averaged 17.6 gms of fiber per day. The diets of women in the lowest quartile of fiber consumption averaged 5.5 gms of fiber per day.

For the four major sources of fiber, the mean frequency of use, the mean serving size when used, and the mean fiber density when used were always lower in women with lower fiber diets as compared to women with higher fiber diets (Table 9). For example, women with lower fiber diets ate vegetables other than white potatoes an average of 4.2 times over four days, 239 gms each time. Women with higher fiber diets ate these vegetables an average of 8.6 times over the four days, 623 gms each time. Women with higher fiber diets chose breads which provided 4.8 gms of fiber per 100 gm serving, whereas women with lower fiber diets chose breads which provided 2.5 gms of fiber per 100 gm serving.

Differences in Sources of Fat and Fiber Intake between Lower Income Women and Higher Income Women

The results we have discussed thus far come from the total sample of women in the CSFII-85 sample. But many nutrition education programs are targeted at particular subpopulations, most often lower income households. Are there differences in the results for lower income women versus higher income women?

We divided the sample of women into two subgroups: women in households with income at or below 180 percent of the poverty level (33.8 percent of the sample), and women in households above 180 percent of the poverty level (66.2 percent of the sample). We then examined which foods were the major sources of fat and fiber for each of these two subgroups.

Fat

Higher income women consumed more fat than lower income women: 64.9 gms per day versus 59.3 gms per day (Table 10). Beef contributed most to fat intake in lower income women (5.4 gms), but only ranked fifth in importance in contributing to the fat intake of higher income women (4.5 gms). The food group lunch meats and bacon was also a more important source of fat for lower income women than for higher income women. Regular salad dressing contributed 5.6 gms of fat on average to the diets of higher income women, and only 2.7 gms of fat per day to the diets of lower income women. Higher income women also got

more fat from sweet grain products than did lower income women: 5.0 gms per day versus 4.1 gms per day.

Fiber

Higher income women consumed more fiber than lower income women: 11.4 gms per day versus 9.8 gms per day (Table 11). For both income groups, vegetables other than potatoes and bread were the major sources of fiber; however, higher income women received larger amounts of fiber than lower income women from both food groups. Fruit provided substantially more fiber to the diets of higher income women than lower income women: 1.4 gms per day versus 0.8 gms per day. While fruit was the third most important source of fiber intake for higher income women, it was only the fifth most important source of fiber intake for lower income women, ranking behind white potatoes and soups.

These types of differences in the major food sources of nutrients underscore the need to know the specific dietary patterns of the population of interest.

APPLICATIONS TO NUTRITION EDUCATION

This information about which foods contribute to the total fat and fiber intakes of American women can be combined with nutrient composition information and general dietary guidelines to suggest specific food groups which could be targeted for nutrition interventions.

Fats

Many dietary practices contribute to total fats intake. These can be described under three areas: food groups, additions to foods, and preparation methods.

Food Groups

Sweet grain products was a major source of fat, saturated fat, and cholesterol intake. Over the four-day recording period, 73.2 percent of the CSFII-85 women reported eating sweet grain products. For example, a piece of devil's food cake provides 11 gms of fat, 5 gms of saturated fat, and 50 mg of cholesterol. Our quartile analyses suggest that decreasing the frequency of use and the portion size of these foods would help lower fat intakes; decreasing the amount of eggs and butter in these foods would help lower cholesterol intakes.

Eggs was the major source of cholesterol intake and accounted for most of the differences in cholesterol intake among the women surveyed. Over the four-day recording period, 59.4 percent of the women had eggs. One egg provides about 220 mg of cholesterol.

Cheese was a major source of saturated fat intake. Over the four-day recording period, 38.5 percent of the CSFII women ate natural cheeses; 48.2 percent ate processed cheeses; 20.1 percent ate low fat cheeses (e.g. cottage cheese, Mozzarella made from part skim milk) or yogurt. Natural cheddar and processed cheeses provide 6 gms of saturated fat per ounce; cheeses made partly from skim milk typically provide 3 gms of saturated fat per ounce.

Whole/evaporated milk was a major source of saturated fat intake. Over the four-day recording period, 52.3 percent of the CSFII women drank whole milks; 48.1 percent drank

lowfat milks. Whole milk provides 5 gms of saturated fat per cup; skim milk provides only a trace of saturated fat per cup.

Beef was a major source of fat, saturated fat, and cholesterol. Lean beef typically provides 7 gms of fat per 100 gm portion. Regular ground beef provides 20 gms per 100 gm portion. Over the four-day recording period, 38.4 percent of CSFII women ate ground beef, and 43.8 percent ate solid beef. The mean amount of fat from the solid beef consumed was 16.9 gms per 100 gm portion.

High Fat Additions

Butter was a major source of saturated fat intake. Over the four-day recording period, 42.2 percent of CSFII women reported eating butter (57.2 percent ate margarine). While butter and margarine both provide 11 gms of fat per tablespoon, butter provides 7 gms of saturated fat and 31 mg of cholesterol; margarine provides 2 gms of saturated fatty acids and no cholesterol.

Regular salad dressing was a major source of total fat intake. Over the four-day recording period, 72.2 percent of CSFII women ate regular salad dressing (13.4 percent ate low-calorie salad dressing). Mayonnaise provides 11 gms of fat per tablespoon; Italian dressing provides 9 gms of fat; low-calorie Italian dressing provides only a trace of fat.

Meat, fish, poultry mixtures and mostly grain, vegetable mixtures were major sources of fat, saturated fat, and cholesterol intake, probably due to sauces, butter/margarine, or even cheese added to the meats, grains, and vegetables. The average amount of fat per 100 gms of the meat/fish/poultry mixtures consumed was 9.6 gms. This compares to 7 gms of fat per 100 gms of lean beef and 16 gms of fat per 100 gms of a Big Mac.

White potatoes was a major source of fat because of additions or preparation method. 43.1 percent had fried or hash browned potatoes; 38.2 percent had mixed potato dishes (e.g. scalloped potatoes); 28.1 percent had potato chips or potato sticks; 36.9 percent had boiled or baked potatoes. Fried potatoes and potato chips provide 8 gms of fat per 10; potatoes au gratin provide 19 gms of fat per half cup; baked potatoes provide only a trace of fat per potato.

Preparation Method

Guidelines suggest using low fat preparation methods. In CSFII women, poultry was eaten primarily as fried. Over the four days of reporting, 41.1 percent of CSFII women ate poultry with the skin and/or fried/breaded; 17.2 percent of CSFII women ate poultry without the skin and baked/broiled. Chicken with the skin and fried provides about 17 gms of fat and 5 gms of saturated fat per 100 gm serving. Chicken without the skin and roasted provides about 9 gms of fat and 2 gms of saturated fat. Over the four-day recording period, 15.1 percent of the women ate pork untrimmed and fried or breaded; 5.4 percent ate pork with the fat trimmed. Pan-fried pork, untrimmed, provides about 37 gms of fat and 13 gms of saturated fat per 100 gm portion, whereas roasted pork, trimmed, provides about 19 gms of fat and 7 gms of saturated fats per 100 gm portion.

Fiber

The USDA-HHS dietary guidelines and other agencies such as the American Cancer Society and the National Cancer Institute recommend increasing the intake of vegetables, fresh fruits, and grains to increase dietary fiber intake. Our research indicates that the frequency of consumption of certain food groups, the choice of particular foods within these food groups, and the preparation method used for these foods created differences in fiber intake.

Food Groups

Vegetables other than potatoes and white potatoes were major sources of fiber. The USDA food pattern suggests 3 to 5 servings daily of vegetables (7). In CSFII-85 women, the average number of servings of vegetables daily was 2.0. The average number of servings of vegetables other than potatoes was 1.6. 27.2 percent of the CSFII women averaged less than one serving daily of vegetables other than potatoes. Salads have become very popular; 73.3 percent of the CSFII women ate salad at least once over the four-day recording period. Over the four-day recording period, only 26.4 percent of the CSFII women ate dried beans or bean soups; 15.8 percent ate Mexican dishes; 64.2 percent ate neither.

Fruits was a major source of fiber. The USDA food pattern suggests 2 to 4 servings of fruits daily (7). Over the four-day recording period, 70.1 percent of the CSFII-85 women ate fruit; 49.9 percent drank fruit juice. 18.9 percent had neither over the four-day period. CSFII women averaged 0.8 servings of fruits or fruit juices per day.

Breakfast cereals was a major source of fiber. Fiber density of the breakfast cereals eaten by CSFII women varied greatly. Ready to eat cereals contributed 8.2 gms of fiber per 100 gms of cereal in women in the highest fiber quartile and only 4.1 gms of fiber per 100 gms of cereal in women in the lowest fiber quartile. In the four days measured, 10.0 percent of the CSFII women ate a high fiber cereal, that is, a cereal which contained at least 5 gms of fiber per serving.

Bread was a major source of fiber. Whole grain bread typically provides 9 gms of fiber per 100 gms, whereas white bread provides about 3 gms of fiber per 100 gms. Over the four days of intake, 45.5 percent of the CSFII women ate whole grain bread at least once; 90.2 percent ate refined grain bread at least once.

Preparation Method

Women with higher fiber diets consumed more raw fruits and vegetables than did women with lower fiber diets. Fruits and vegetables eaten fresh and raw, unpared, provide more fiber than if cooked and pared. Fruits provide more fiber than fruit juices. For example, an unpared apple provides 3.6 gms of fiber per apple; applesauce provides 2.1 gms of fiber per 1/2 cup; apple juice provides 0.2 gms of fiber per 3/4 cup (7).

CONCLUSIONS

Information about the target population's actual dietary patterns can be combined with nutrient composition information in order to design effective nutrition education programs. The actual intervention for the individual must be appropriate and acceptable to each

individual. The total diet should be considered, since changing consumption of particular food groups is likely to impact on the consumption of other food groups.

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Table 1
Dietary Recommendations and CSFII-85 Diets

Nutrient Intake	Recommendation	Mean	% Meeting Recommendation
% Calories from fat	≤35%	36.8	38.5%
	≤30%		14.3%
% Calories from saturated fat	≤10%	13.3	14.0%
Cholesterol (mg/day)	≤300 mg/day	280	62.0%
Fiber (gm/day)	≥15 gm/day	10.9	19.3%
	≥20 gm/day		4.6%

Table 2
Sources of Total Fat Intake

Food Group	Fat (gms)	% of Total	Cumulative %
Mostly grain, veg. mixtures	5.2	8.2	8.2
Meat, fish, poultry mixtures	5.1	8.0	16.2
Beef	4.8	7.6	23.8
Sweet grain products	4.7	7.4	31.2
Regular salad dressing	4.7	7.4	38.6

Mean daily fat intake was 63.1 gm.

Table 3
Components of Food Group Intake for First and Fourth Quartiles of Fat Intake

FOOD GROUP	USERS ONLY					
	<u>Freq. of Eating</u>		<u>Serving Size</u>		<u>Density (fat/100 gm)</u>	
	Low	High	Low	High	Low	High
Sweet grain products	0.86	2.94*	95.9	279.5*	14.4	14.4
Regular salad dressing	1.05	1.99*	37.4	75.8*	49.5	49.6
Mostly grain, veg. mixtures	1.02	1.43*	311.6	436.9*	8.1	9.1
Meat, fish, poultry mixtures	0.89	1.47*	285.4	426.0*	9.1	10.0*
Beef	0.92	1.23*	138.4	204.3*	16.5	18.5*

Statistical significance evaluated by ANOVA.

* Statistically significant at $p < .05$.

Table 4
Sources of Saturated Fat Intake

Food Group	Sat Fat (gms)	% of Total	Cumulative %
Natural processed			
cheeses, cream	2.3	10.3	10.3
Beef	2.0	8.6	18.9
Mostly grain, veg. mixtures	1.9	8.5	27.4
Meat, fish, poultry mixtures	1.7	7.6	35.0
Whole, evap. milk	1.5	6.4	41.4
Lunch meats, bacon	1.5	6.4	47.8
Butter/margarine	1.5	6.4	54.2
Sweet grain products	1.4	6.3	60.5
Dairy/frozen desserts	1.1	4.8	65.3

Mean daily saturated fat intake was 22.9 gms.

Table 5
Components of Food Group Intake for First and Fourth Quartiles
of Saturated Fat Intake

USERS ONLY

FOOD GROUP	<u>Freq. of Eating</u>		<u>Serving Size</u>		<u>Density (sat.fat/100 gm)</u>	
	Low	High	Low	High	Low	High
Whole, evap. milk	1.15	2.80*	289.1	893.1*	2.1	2.0
Natural, processed cheeses, cream	1.26	2.96*	38.5	109.4*	18.3	17.5
Beef	0.87	1.26*	136.4	213.0*	6.7	7.7*
Mostly grain, veg. mixtures	1.01	1.42*	298.9	440.7*	3.0	3.5
Sweet grain products	0.96	2.86*	104.0	261.1*	4.4	4.5
Meat, fish, poultry mixtures	0.91	1.43*	271.9	413.8*	3.0	3.4
Lunch meats/bacon	0.88	1.87*	65.8	118.8*	9.3	10.2
Butter/margarine	1.54	3.02*	16.4	37.1*	24.7	32.6*
Dairy, frozen desserts	0.33	1.25*	145.5	245.2*	3.8	5.4*

Statistical significance evaluated by ANOVA.

* Statistically significant at $p < .05$.

Table 6

Sources of Cholesterol Intake

Food Group	Cholesterol (mg/day)	% of Total	Cumulative %
Eggs	87	31.1	31.1
Beef	26	9.3	40.4
Meat, fish, poultry mixtures	24	8.5	48.9
Mostly grain, veg. mixtures	20	7.2	56.1
Sweet grain products	18	6.5	62.6
Poultry	17	6.1	68.7
Natural, processed cheeses, cream	11	3.8	72.5
Fish	11	3.8	76.3

Mean daily cholesterol intake was 280 mg.

Table 7

Components of Food Group Intake for First and Fourth Quartiles of Cholesterol Intake

FOOD GROUP	USERS ONLY					
	<u>Freq. of Eating</u>		<u>Serving Size</u>		<u>Density (chol/100 gm)</u>	
	Low	High	Low	High	Low	High
Eggs	0.2	2.1*	42.4	178.7*	511	525
Beef	0.9	1.2*	130.7	197.7*	92	92
Poultry	0.7	1.0*	117.1	195.1*	86	84
Cured, organ, misc. meats	0.3	0.5*	72.8	134.4*	100	142*
Mostly grain, veg. mixtures	1.0	1.4*	273.6	423.1*	22	33*
Meat, fish, poultry mixtures	1.1	1.4*	294.5	385.6*	42	47*
Fish	0.4	0.5	111.8	150.1*	85	89
Sweet grain products	1.4	2.4*	146.2	243.9*	44	58*

Statistical significance evaluated by ANOVA.

* Statistically significant at $p < .05$.

Table 8

Sources of Fiber Intake

Food Group	Fiber (gm/day)	% of Total	Cumulative %
Veg. other than white potatoes	2.6	23.9	23.9
Bread	1.4	13.2	37.1
Fruits	1.2	10.7	47.8
White potatoes	1.0	9.3	57.1
Mostly grain, veg. mixtures	0.8	7.1	64.2
Soups	0.7	6.8	71.0
Meat, fish, poultry mixtures	0.6	5.6	76.6
RTE cereals	0.5	5.0	81.6

Mean daily fiber intake was 10.9 grams.

Table 9

Components of Food Group Intake for First and Fourth Quartiles of Fiber Intake

USERS ONLY

FOOD GROUP	Freq. of Eating		Serving Size		Density (fiber/100 gm)	
	Low	High	Low	High	Low	High
Veg. other than white potatoes	4.2	8.6*	238.6	623.1*	2.6	2.8*
Bread	2.9	4.5*	134.9	199.4*	2.5	4.8*
Fruits	0.8	3.9*	191.4	534.1*	1.9	2.0*
White potatoes	1.1	1.8*	162.4	282.1*	2.5	2.3*
Mostly grain, veg. mixtures	1.1	1.3	331.0	433.0*	1.2	1.2
Soups	0.6	1.0*	314.9	396.8	1.6	2.4*
Meat, fish, poultry mixtures	1.1	1.3*	275.2	386.3*	0.9	1.1
RTE cereals	0.3	1.3*	48.4	87.9*	4.1	8.2*

Statistical significance evaluated by ANOVA.

* Statistically significant at $p < .05$.

Table 10
Sources of Fat Intake by Household Income

$\leq 180\%$ poverty (N = 349)		$> 180\%$ poverty (N = 683)	
FOOD GROUP	FAT (gm)	FOOD GROUP	FAT (gm)
Beef	5.4	Regular salad dressing	5.6
Mostly grain, veg. mixtures	5.2	Mostly grain, veg. mixtures	5.2
Meat, fish, poultry mixtures	5.0	Meat, fish, poultry mixtures	5.1
Lunch meats/bacon	4.2	Sweet grain products	5.0
Sweet grain products	4.1	Beef	4.5
Mean daily fat intake was 59.3 grams		Mean daily intake was 64.9 grams.	

Table 11
Sources of Fiber Intake by Household Income

$\leq 180\%$ poverty (N = 349)		$> 180\%$ poverty (N = 683)	
FOOD GROUP	FIBER (gm)	FOOD GROUP	FIBER (gm)
Veg. other than white potatoes	2.4	Veg. other than white potatoes	2.7
Bread	1.2	Bread	1.6
White potatoes	1.0	Fruits	1.4
Soups	0.9	White potatoes	1.0
Fruits	0.8	Grain, veg. mixtures	0.8
Mean daily fiber intake was 9.8 grams		Mean daily fiber intake was 11.4 grams.	

ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

United States Department of Agriculture
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Outlook '89 Session #11

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OUTLOOK FOR DAIRY

James J. Miller

Agricultural Economist, Economic Research Service

The year of 1988 has been a chameleon of a year. Filled with shifts, adjustments, and surprises, this year looks dramatically different depending on your angle. The first half was much different than the second half. Changes measured by milkfat were far from those measured by skim solids. Trade concerns swung from the effects of imports to the effects of commercial exports. Only in a year like this could milk production set an annual record--yet fail to set a single monthly record.

Milk Production

Milk production posted strong gains early in 1988, but increases were easing because of the January 1 cut in support price. During the first half, cow numbers slipped 79,000 in the 21 States, probably because of the exit of farms unable to stand the reduced returns of recent years. The support price cut also reduced the milk-feed price ratio from the record levels of a year earlier. The extraordinary gains in output per cow during late 1987-early 1988 were eroded back to trend levels. After a January-March rise of almost 3 percent, April-June milk production was only 1 percent above a year ago.

Last summer's drought shifted emphasis from the support price to feed costs. The average value of concentrate ration rose about \$1.25 per cwt between April and September, but rises in prices of feedgrains and protein meal were not yet fully reflected. Alfalfa hay prices hit record levels. In the drought areas, feed cost were boosted as farmers were forced to purchase forage to cover their needs. Milk-feed price relationships were reduced to the lowest levels since the seventies.

Milk production did not respond quickly to the rise in feed costs. Although dairy cow slaughter has run above a year earlier since mid-April, milk cow numbers were stable during July-September. Milk per cow posted 2-percent rises through the summer. Increases in milk production during July-September were similar to those of April-June.

Milk production for all of 1988 will rise about 2 percent from 1987. The new record was reached because of an increase of almost 3 percent in milk per cow. Cow numbers averaged 10.2 million, down 1 percent from 1987 and the fewest on record.

Production Outlook

Feed costs are an important component of the production outlook, but are far from the only factor. The pre-drought adjustment indicated some weakness in milk output. While many milk producers have been quite successful at lowering nonfeed cash costs, milk price reductions have hurt those left behind. The amount produced by this group and how quickly they might exit is a key uncertainty. Other producers continue to expand, but expansion has been cautious in most areas. Producers have been emphasizing reductions in debt load and in cash costs rather than new investment.

Concentrate ration values probably will continue to rise in early 1988, primarily because of rewidening the spread between ingredient prices and the ration value. First-half values may be \$1.25-1.75 higher than a year earlier. If next year's crops are good, concentrate values will decline during the second half. Even so, the 1989 average concentrate value probably will rise 8-10 percent from 1988, almost as much increase as this year. Returns over concentrate costs probably will be similar to 1988. However, the milk-feed price ratio will drop to the lowest levels since the mid-seventies.

Among other factors, slaughter cow prices are expected to continue strong, reflecting declines in nonfed slaughter. The ratio of replacement heifers to milk cows remains below the levels of the mid-eighties but above earlier years. Current levels probably are about neutral, neither pushing up cow numbers nor effectively limiting expansion. Alternatives to dairying also do not indicate a particular direction; alternatives have improved but are largely lackluster.

Milk production probably will be near a year earlier during early 1989. Milk cow numbers likely will be easing, as some producers exit and other producers delay expansion. Low milk-feed price ratios may dampen increases in milk per cow. If feed prices decline next summer, milk output is likely to strengthen as 1989 progresses. However, the 1989 total may be about the same as 1988's.

Commercial Use

Domestic demand conditions have stayed fairly good in 1988. Economic growth continued and relative prices of dairy products were favorable. Products based on whole milk or skim milk generally have posted healthy increases in commercial use. Growth in sales of skim solids has accelerated, partially because of relatively large cuts in the support purchase price for nonfat dry milk since 1983. Commercial use of cream-based products has been slow to recover from late-1987 declines. Sales weakness for these products dropped the traditional measure of commercial use (milk equivalent, milkfat basis) 2 percent below a year earlier during January-March and held it slightly below during second quarter. The drop in sales of cream-based products followed more than 3 years of very rapid rises. Third-quarter commercial use rose more than 2 percent. Strong rises in cheese sales and slight recovery in sales of cream-based products were the sources of the increase. Sales are expected to be brisk during the last quarter.

Export demand for nonfat dry milk and similar products has been important since mid-1988, when international prices reached domestic levels. Agreements were reached for the commercial export of about 150 million pounds. Most of this powder will be shipped in 1988 or early 1989. Sharply higher international prices for nonfat dry milk have pushed up prices of casein, adding some additional tightness to domestic markets for skim solids.

Commercial use for all of 1988 probably will edge out 1987's 136 billion pounds milk equivalent and set a new record. Cheese sales will post a large rise, particularly American varieties. Fluid milk sales are expected to be just barely above a year ago. Commercial use of butter probably will fall slightly this year, although a strong holiday season might bring the total close. Most perishable manufactured products will not match 1987 levels. Commercial disappearance of nonfat dry milk will rise sharply to the highest level in a decade, the result of strong growth in domestic use plus exports.

Domestic commercial use in 1989 is expected to grow in terms of both milkfat and skim solids. The economy is likely to expand, and the modest increase in retail dairy prices probably will not blunt the recent sales recovery. Prospects for commercial exports are less certain. Even so, international prices of nonfat dry milk are expected to stay strong through at least midyear, and probably for all of 1989. Exports may claim most of the domestic surplus of nonfat dry milk. International butter prices also are likely to rise. Although exports of butter are unlikely, small cheese exports are possible. Commercial use for all of 1989 probably will rise 1-3 percent.

Stocks

Commercial stocks of dairy products on October 1 were equivalent to only 4.7 billion pounds of milk, down from 5.4 a year ago and the second lowest on that date since 1973. Although butter stocks were adequate, American cheese holdings were the lowest in 3 decades. Last spring, cheese makers continued to sell to the Commodity Credit Corporation (CCC) instead of building stocks. Cheese stocks proved to be inadequate for this year's tighter skim milk market. This shortfall was a major contributor to sharp increases in prices during the second half of 1988. October 1 manufacturers' stocks of nonfat dry milk also were relatively low.

American cheese stocks at yearend probably will be stretched thin. Rebuilding both warehouse and pipeline stocks may require a sizable share of the potential early-1989 cheese surplus. If second-half markets are expected to remain tight, early-summer holdings may grow to the highest levels in several years.

October 1 Government holdings totalled 4.9 billion pounds, up slightly from a year ago. Although butter stocks were sizable, cheese and nonfat dry milk stocks were quite small. The cheese and nonfat stocks had been reserved for domestic donation use.

Purchases

Following the collapse of the cream market in late 1987, CCC butter purchases were heavy during the first half of 1988. However, those purchases did not represent an increase in the surplus of whole milk. Cheese purchases were only slightly higher and nonfat dry milk removals fell. Cheese and nonfat dry milk purchases effectively ceased last summer, as markets tightened and wholesale prices rose. Some butter continues to be sold to the Government this fall, but less than a year ago.

The 1988 total will be 8-9 billion pounds milk equivalent, up from 6.7 in 1987. Butter purchases will total about two-thirds larger. However, cheese removals will be down moderately, while nonfat dry milk purchases will fall by half. Net removals of cheese and nonfat dry milk would have fallen more if CCC stocks had been available for sale back to the industry during the second half.

Weaker milk production, a growing domestic market, stock rebuilding, and commercial exports probably will keep cheese and nonfat dry milk purchases small during early 1989. Butter will be in the weakest market position and

significant purchases are likely. Removals during the flush season will depend on expected second-half conditions and the desire for commercial stocks. The 1989 total is expected to be 5-7 billion pounds milk equivalent, mostly consisting of butter. If the export market stays strong, purchases of nonfat dry milk might be tiny.

Prices

Early-1988 prices adjusted downward following the 50-cent reduction in support price on January 1. Although wholesale prices reached support levels quickly, manufacturing milk prices did not reach support until April. Prices rested lightly on support during the first half; farm milk prices ran about 60 cents below a year earlier even though the support price was 75 cents less.

Under these conditions, relatively little tightening was needed to start prices rising. Cheese and nonfat dry milk prices rose steadily through summer and early autumn, increasing a total of 15-20 percent. Without adequate stocks (particularly of cheese), prices had to rise enough to ration current production. Butter prices managed a small rise last summer, but have been hard pressed to maintain those gains this autumn.

The Minnesota-Wisconsin (M-W) price of manufacturing grade milk rose from a May-June low of \$10.33 per cwt to a November peak probably in excess of \$12. This was the largest seasonal rise since 1975. This strong increase in the M-W price is bringing late-1988 average milk prices above a year ago. For all of the year, the average price of all milk will fall 30-40 cents per cwt from 1987's \$12.54.

Retail dairy prices eased slightly during early 1988 and were about 2 percent above a year ago. Increasing farm and wholesale prices started to push up retail prices in early summer. For all of 1988, retail dairy prices will average about 2 percent higher than last year, half the rise in prices of all food or of all items.

Price Outlook

For once, there is little uncertainty about the new year's support price. As a result of drought relief legislation, there will be no January 1 price cut. Also, the support price will be raised 50 cents for the April-June quarter.

There is considerable uncertainty about market prices. Prices will drop seasonally around the start of the year. However, prices may bridge across to the higher second quarter support prices. If conditions ease during the second half, the seasonal rise probably will not match this year's. Farmers probably will receive an average 10-50 cents more per cwt next year. However, potential volatility exists, in part because of the importance of export prospects.

Retail dairy prices probably will rise 2-4 percent in 1989. Even though market prices will show fair market strength, a rise in inflation-adjusted prices remains unlikely.

Beyond 1989

Despite all the twists of recent years, longer-run trends have been remarkably stable. Milk producers have a propensity to expand milk production, even at lower prices. Domestic consumers respond to lower prices, accelerating the slow trend growth. If the market remains entirely domestic, slow erosion of real prices probably will be necessary to maintain our current reasonable balance between supplies and use.

But, it is no longer a sure bet that the market will be just a domestic one. The massive supply shift since 1979 has generated lower U.S. prices than ever before. At the same time, most major foreign producers have adopted supply controls, breaking the link between internal price rises and jumps in supplies to be exported under subsidy. Given the politics of milk around the world, it probably is unrealistic to expect the U.S. to be a steady exporter. However, commercial exports may periodically be important in the future.

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DAIRY OUTLOOK: INDUSTRY REACTION

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The year 1988 has been changeable. We have moved, in the case of milk production, from year-over-year gains in January of 3 percent; to June's reported increase of only 0.5 percent; and then to October, which was up 2 percent. Stocks, which started 10 percent larger than a year earlier are now 10 percent less. Imports, likewise, started the year up 20 percent, but recent data indicate shortfalls from year earlier amounts during July-August of 10 percent.

Commercial use during January-March was down 2.5 percent from first quarter 1987, but up 2.5 percent from a year earlier in July-September. Net USDA removals which started the year one-third larger were twice as large as April-May and now are half of last year. The all-milk price which started 1988, 70 cents per cwt. below January 1987, was even with last year during October and will likely finish about 70 cents above December 1987.

Production Situation and Outlook

Milk production for all of this year will rise nearly 3 billion pounds from the 142.5 produced in 1987. The new production record was because of a more than 400 pound (nearly 3 percent) gain in output per cow (360 pounds or 2.6 percent after adjustment for leap year.) Cow numbers in 1988 will average 10.25 million head, down 0.8 percent.

In 1989, the concentrate ration value per cwt. will average higher by about 5 percent. On October 1, 1988, the ration value was \$8.30 per cwt., up 24 percent from a year earlier. The ration value is expected to remain unchanged through early spring if the corn and soybean crops develop normally in the Southern Hemisphere.

There has been some decline of ingredient prices since last summer, but a seasonal increase through next spring seems likely. If the U.S. crops are good next year, the cost of grain and concentrates will decline next summer and fall to levels below this fall. Returns over grain costs next year may be down slightly and the average milk-feed (16 percent) relationship next year will be lower than this year.

The ratio of replacement heifers to milk cows has declined from the mid-1980's levels, however, at 40 heifers to 100 milk cows, dairy farmers could expand the milking herd if they desire. For example, dairy cow slaughter has run above a year earlier since early spring, but the dairy cow herd was unchanged during the summer quarter.

The low returns over feed costs (both hay and grain) and the higher utility cow prices, expected because of reduced beef production and higher per capita incomes, are indicating that the milk cow herd next year will decline about 100,000 head (1 percent). The low milk-feed relationships are expected to dampen gains in output per cow next year to about 200 pounds, 1.4 percent above 1988 or 240 pounds and 1.7 percent if adjusted for leap year.

In 1990, the herd will likely again be down about 100,000 head. Meanwhile, milk per cow will be up nearly 400 pounds. The underlying rate of gain would again be about 240 pounds per cow, but bovine somatotropin (bST) will result in an additional gain of about 1 percent in 1990. This will leave production for 1990 at 148.5 billion pounds, up 1.7 percent from 1989.

Commercial Use

Commercial sales of milk and dairy products are on the mend. After being down 2.5 percent in the first quarter and 0.4 percent in the second, sales for the first 9 months on a milkfat basis are even with a year earlier. Early indications point toward a strong gain during October of 2.5 percent; milk production was up 2 percent and sales to CCC were down by half. For all of 1988, commercial sales are expected to total a record 136.5 billion pounds.

In 1989, sales of dairy products are expected to be up 1 to 2 percent. The economy will grow, but likely at a somewhat reduced rate. In addition, the higher wholesale prices during last summer and this fall may result in higher real retail prices during first-half 1989 which will slow sales.

In 1990, sales are expected to be unchanged to 3 percent larger. The economy may continue to grow and lower wholesale prices may slow retail price gains. On the other hand, the economy could stop growing in 1990 and/or the use of bST could slow consumers' use of milk and dairy products.

Price Outlook

The sharp gain in farm level milk prices from June through November this year are unlikely to be repeated in 1989. The average prices received by farmers for all-milk this year will likely be about \$12.20 per cwt., down 35 cents from 1987. The effective price, after adjusting for differences in assessments, will be about \$12.15, down 17 cents.

In 1989, milk prices will start the year above a year earlier, but will be sharply lower at yearend as the level of support is expected to be reduced by 50 cents per cwt. on January 1, 1990. The lower prices late next year will result in the average all-milk price in 1989 being slightly below this year. Prices for milk in 1990 will be down by 50 cents as a result of the price support reduction.

U. S. COMMERCIAL MILK SUPPLY AND USE

	<u>1986</u>	<u>1987</u>	<u>1988*</u>	<u>1989*</u>	<u>1990*</u>
	----- Pounds -----				
Milk Per Cow	13,259	13,785	14,190	14,390	14,775
	----- Thousands -----				
Milk Cows	10,813	10,334	10,250	10,145	10,050
	----- Billion Pounds -----				
Production	143.4	142.5	145.4	146.0	148.5
Farm Use	2.4	2.2	2.2	2.2	2.2
Marketings	141.0	140.3	143.2	143.8	146.3
Imports	2.7	2.5	2.5	2.5	2.5
Beginning Commercial Stocks	4.6	4.2	4.6	4.6	4.6
Total Commercial Supply	148.3	146.9	150.3	150.9	153.4
Ending Commercial Stocks	4.2	4.6	4.6	4.6	4.6
Net Removals	10.6	6.7	9.2	8.3	8.8
Commercial Disappearance	133.5	135.6	136.5	138.0	140.0

SOURCE: Agricultural Outlook - USDA

* Projections by C. M. Carman
Agway Inc. - November 1988

SELECTED MILK PRICES, ACTUAL AND PROJECTED 1/
FEDERAL AND STATE ORDER PRICES DO NOT INCLUDE PREMIUMS

YR./MO.	USDA SUPPORT	M-W	U.S. ALL MILK	NEW ENGLAND FO #1	NY-NJ FO #2	MIDDLE ATLANTIC FO #4	E. OHIO & W. PA FO #36	W.NY STATE ORDER
		\$ PER CWT FOR		MILK TESTING	3.5% FAT			
1987 1	11.07	11.70	12.74	13.16	12.76	13.42	13.02	12.85
2	11.07	11.27	12.51	12.86	12.42	13.09	12.77	12.51
3	11.07	11.03	12.17	12.36	11.92	12.78	12.42	12.02
4	11.07	11.00	11.98	11.99	11.55	12.52	12.15	11.65
5	11.07	11.00	11.92	11.70	11.30	12.32	11.94	11.39
6	11.07	11.07	11.90	11.74	11.35	12.44	11.98	11.41
7	11.07	11.17	12.04	12.35	11.96	12.69	12.08	12.01
8	11.07	11.27	12.20	12.79	12.44	12.77	12.21	12.51
9	11.07	11.42	12.49	13.10	12.75	13.04	12.43	12.85
10	10.82	11.35	12.49	13.14	12.80	13.06	12.53	12.89
11	10.82	11.34	12.41	12.97	12.69	13.07	12.53	12.75
12	10.82	11.12	12.20	12.59	12.21	12.88	12.35	12.26
1988 1	10.33	10.91	12.03	12.41	12.03	12.68	12.25	12.01
2	10.33	10.60	11.88	12.14	11.80	12.40	12.00	11.81
3	10.33	10.43	11.54	11.71	11.29	12.18	11.71	11.34
4	10.33	10.33	11.35	11.36	10.92	11.85	11.48	11.07
5	10.33	10.34	11.26	11.09	10.71	11.75	11.33	10.87
6	10.33	10.34	11.25	11.03	10.66	11.75	11.26	10.68
7	10.33	10.52	11.40	11.66	11.31	11.94	11.42	11.27
8	10.33	10.98	11.78	12.37	12.03	12.29	11.73	11.96
9	10.33	11.48	12.19	12.79	12.50	12.66	12.08	12.41
10	10.33	11.88	12.40	13.21	12.94	13.05	12.54	12.81
11 *	10.33	11.90	12.60	13.29	13.04	13.36	12.84	12.94
12 *	10.33	11.80	12.50	13.20	12.83	13.49	12.97	12.73
1989 1 *	10.33	11.50	12.40	13.00	12.63	13.27	12.82	12.53
2 *	10.33	11.20	12.20	12.80	12.37	13.05	12.63	12.27
3 *	10.33	10.90	11.90	12.28	11.83	12.75	12.29	11.73
4 *	10.82	10.80	11.80	11.87	11.41	12.35	11.99	11.31
5 *	10.82	10.70	11.70	11.56	11.14	12.21	11.76	11.04
6 *	10.82	10.60	11.60	11.44	11.00	12.15	11.61	10.90
7 *	10.33	10.55	11.40	11.86	11.45	12.15	11.63	11.35
8 *	10.33	10.60	11.50	12.33	11.92	12.25	11.70	11.82
9 *	10.33	10.80	11.70	12.52	12.15	12.40	11.83	12.05
10 *	10.33	10.90	11.80	12.53	12.24	12.44	11.91	12.14
11 *	10.33	10.80	11.70	12.44	12.14	12.50	11.99	12.04
12 *	10.33	10.60	11.60	12.08	11.70	12.37	11.86	11.60
AVG.								
1986	11.31	11.30	12.22	12.43	12.09	12.66	12.22	12.16
1987	11.01	11.23	12.25	12.56	12.18	12.84	12.37	12.26
1988 *	10.33	10.96	11.85	12.19	11.84	12.45	11.97	11.82
1989 *	10.45	10.83	11.78	12.22	11.83	12.49	12.00	11.73

1/ FEDERAL AND STATE ORDER PRICES DO NOT INCLUDE 'OVER-ORDER' PREMIUMS.

FO #1 uniform price at the 21st zone, f.o.b. plant., FO #2 uniform price at the 201-210 mile zone, f.o.b. township., FO #4 weighted average price f.o.b. plant in major cities., FO #36 uniform price, f.o.b. plant., W.NY uniform price, f.o.b. plant. Prior to 3/87, W.NY is weighted average of uniform prices for state orders 127 and 129.

= PROJECTED

11/21/88 C. M. CARMAN AGWAY INC.

ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

United States Department of Agriculture
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THE CHANGING U.S. ROLE IN THE INTERNATIONAL DAIRY MARKET

Bruce L. Stuart
Chief Executive Officer, M.E. Franks, Inc.

Remarkable changes have occurred in the international dairy scene over the last two years which have affected, and will continue to affect, the nature and direction of world trade in manufactured milk products. So remarkable have been these changes that for the first time since the end of the Second World War, surplus stocks of milkpowder throughout the world have virtually become non-existent and butter stocks are dwindling to insignificant levels. Hand-in-hand with the elimination of these stocks, massive price increases have taken place on the international market, particularly for nonfat dry milk which has nearly doubled in value within the last twelve months.

The United States is intricately entwined within this changing global dairy situation and seems to have the potential to play an increasingly significant role in the years ahead. To attempt to provide an appraisal as to what this might mean for the U.S. dairy industry, at least short-term, it is necessary to have some background to the world dairy picture and the driving forces which are bringing about these revolutionary changes.

Total cows milk production throughout the world in 1987 was reported at around 465 million tons, a decrease of less than 1 percent on production in 1986. Of this total, approximately 24 percent was produced in the European Community, 22 percent in the USSR and 14 percent in the USA. It has been estimated, that after excluding intra-trade between the countries making up the EC, true world trade in milk products only accounts for about 5-6 percent of this total world milk production. On a milk equivalent basis this represents less than half of the U.S. domestic dairy market.

World trade in dairy products is therefore rather small when considered in the context of total world production, but it always has been and always will be a critical factor in attempts to balance production against demand. For the EC, in particular, the world market has for many years been an essential outlet for its surplus production. So much so that in all of the primary products of butter, cheese and milkpowder, it has been the leading international supplier. If present EC policies are sustained, however, this position is likely to change drastically.

With a few exceptions, such as New Zealand, most dairy industries throughout

the world have been heavy recipients of financial support from their Governments as a means of ensuring adequate domestic supplies of milk and to provide an acceptable income to the dairy farmer. In many instances, this support has also extended to the payment of subsidies to dispose internally or externally of production that is surplus to normal domestic needs and which ironically has been encouraged by the basic support arrangements. All of this has been created by the farm policies of the developed nations, but the massive cost of this support has, in recent years, led to a reappraisal of policies and a general attempt to reduce the tremendous drain on their treasuries. Whichever direction one turns, many Governments are utilizing various methods to curb milk production to a level more in line with internal needs and to reduce the cost of Government support. Apart from the EC and the USA, these measures are well underway in other major dairying countries such as Australia, Canada, Sweden, Norway, Finland and Austria. Even in New Zealand where Government assistance is minimal, voluntary steps were taken in recent years to contain the growth of milk production as a means of relieving world surpluses.

Because of its major share of total world milk production, the effects of dairy policy changes within the EC are, however, of the greatest significance to the future outlook for the international dairy market and to the role which the USA may play in it. Basically, the latest EC measures to contain milk production and reduce expenditure have taken the following forms:

- a) The introduction of mandatory production quotas for each member country with heavy financial penalties for any excess production. (For the two year period through mid 1989 the latest quota arrangements require a reduction in milk deliveries totalling 9.5 percent.)
- b) The progressive reduction of the level of subsidies which have been available to exporters to enable them to drastically reduce their export prices below the domestic market prices. As an example, EC export subsidies on nonfat dry milk are currently nearly \$500 per ton less than they were a year ago.
- c) The reduction or elimination of subsidies on certain internal disposal schemes for skim milk powder, eg. usage in animal feed formulations.
- d) The introduction of special disposal arrangements to reduce the enormous butter stock mountain which had for many years over-shadowed the international market. These have involved large low price sales to the Soviet Union as well as programs designed to encourage domestic usage.

So far, the results from these measures have been quite dramatic. During 1987, production of butter in the EC fell by 14 percent and nonfat dry milk by 26 percent. For 1988, further reductions of 6 percent for butter and 9 percent for nonfat dry milk are projected. Within the last year, surplus stocks of nonfat dry milk have fallen from 667,000 tons (845,000 two years ago) to around 10,000 tons, and stocks of butter have fallen from 1.1 million tons (1.5 million tons two years ago) to 330,000 tons. It has been projected that by the end of 1988, butter stocks are likely to be no more than 200,000 m/t, a level which is regarded as a reasonable working stock.

These lower levels of production and reduced stocks have had a direct effect on international market prices. This has been most marked in respect of nonfat dry milk which has increased from a level of around US\$1000 ton FOB a year ago to around US\$1900 ton today. Butter prices have moved in the same period from a level as low as US\$900 ton FOB to US\$1600 ton today. Although not so affected by stock reductions, cheddar cheese prices have also firmed from around US\$1150 ton to US\$1900 ton FOB as a result of the competition for available milk and the continued increase in world cheese consumption.

Already these developments have had a marked effect on the U.S. situation for nonfat dry milk. The U.S. has, of course, been a major exporter of nonfat dry milk for many years, but until recently, exports were by Government only and solely a means of disposing of the massive CCC stocks built up by our support program. These removals were either in the form of donations under various mandated aid programs, or as direct government to government sales at heavily subsidized prices, often including extended payment arrangements. Quantities exported under these arrangements during 1985/86/87 exceeded 400,000 tons per year representing more than one third of total world exports (including aid programs).

The first glimmer of light for a commercial breakthrough for the U.S. into the international dairy market came with the provision in the Food Security Act of 1985 for a Dairy Export Incentive Program. The intent of this legislation was to allow commercial exporters of dairy products to compete on the international market by providing a subsidy (in the form of bonus product from CCC stocks) to cover the difference between the world price and the U.S. domestic price. The program did not become operational until early 1987 and, although it had many shortcomings, it resulted in commercial export contracts for around 17,500 tons of product for shipment through the end of 1988. Of this, approximately 10,000 tons were fresh commercial production with the balance coming from CCC stocks as the bonus. With the exception of some relatively small quantities of wholemilk powder and cheddar cheese, all of these export contracts were for nonfat dry milk.

Following the rapid rundown in CCC stocks at the beginning of this year, the DEIP program was suspended in April for all products except butter and anhydrous milkfat. While its effective life was short, it did serve the purpose of breaking the ice for U.S. exporters and demonstrating to buyers in many parts of the world that the U.S. producer of nonfat dry milk had the potential to reach for and match the standards required in the international market. Unfortunately, butter and butterfat sales under the program have not been workable so far, largely because the world market requires an unsalted butter of 82 percent fat, whereas stocks available from CCC as the bonus are all salted butter with 80 percent fat. Provision was made in the recent Trade Bill in terms of which generic commodity certificates are to be made available for the DEIP program in place of dairy bonus stocks, and when activated by CCC, this may open up possibilities to develop butterfat sales under the program.

With the rapid and dramatic change in world supplies and pricing for nonfat dry milk, the time lag between the demise of the Dairy Export Incentive Program and the first truly commercial sales out of the U.S. turned out to be a short one.

By the middle of this year, the world price was already pushing to a level above the U.S. support price and since then, major contracts for nonfat dry milk have been concluded on a direct commercial basis without the need for Government subsidies. It is estimated that so far, sales of nonfat dry milk totalling at least 70,000 tons (154 million lbs) have been concluded for delivery from August 1988 through the middle of 1989. More than half of this quantity is known to be earmarked for Mexico, one of the world's largest importers of nonfat dry milk.

With world prices for cheese, butter, milkfat, and wholemilk powder still at levels below U.S. domestic prices, export movement of these products could currently only be achieved with the assistance of government subsidies to match those still applied by the EC. However, it is noteworthy that the price gap has narrowed considerably in the last year with each of these products and is likely to continue to do so.

To illustrate the relationship between U.S. domestic prices and the world market, it is necessary to also examine internal EC prices and the subsidies available to their exporters. The latter is of course, what tends to be the major factor in establishing international prices. The current comparison for the major products of world dairy trade based on the latest levels of EC subsidy which will become effective at varying stages over the next several months is as follows:

A) INTERNAL EC PRICES AND CURRENT EXPORT SUBSIDY

	*		Nonfat	Wholemilk	
	<u>Butter</u>	<u>Butteroil</u>	<u>Dry Milk</u>	<u>Powder</u>	<u>Cheddar</u>
Estimated Internal Prices	\$4125	\$5000	\$2750	\$3540	\$4160
Subsidy	<u>\$2415</u>	<u>\$3029</u>	<u>\$ 809</u>	<u>\$1463</u>	<u>\$2000</u>
Estimated Export Price (FOB Port)	<u>\$1710</u>	<u>\$1971</u>	<u>\$1941</u>	<u>\$2077</u>	<u>\$2160</u>

B) ESTIMATED CURRENT UNSUBSIDIZED U.S. EXPORT PRICES BASED ON DOMESTIC VALUES

FOB Port	\$3000	\$3700	\$1950	\$2700	\$2980
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C) CURRENT U.S. SUPPORT PRICES

Ex Plant	\$2910	---	\$1604	---	\$2540
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* EC prices based on 82% fat unsalted
U.S. prices based on 80% fat salted

As can be seen, nonfat dry milk is the only product presently in a competitive position with world prices but wholemilk powder and cheese are moving closer. It can also be seen that if EC export subsidies were totally eliminated, export prices for all products could rise to levels well above the U.S. market.

This then is the background for an attempt to establish some forward projection of the role which the U.S. is likely to now play in the commercial international dairy market. There are many complex factors involved both externally and within the U.S. dairy situation. As has been well demonstrated over the years, small shifts in either production or consumption patterns can have a major impact on the global picture. In the short term, however, it seems most probable that the U.S. involvement in commercial export trade will be confined to nonfat dry milk. This market sector, therefore, needs to be examined closely.

Excluding intra trade within the EC, but including food aid programs, total world exports of nonfat dry milk have been hovering around 1.1 million tons per annum for the last several years. With the virtual disappearance of world stocks and the resulting reappraisal of foreign aid programs utilizing milk powder, it is difficult to estimate accurately what the potential market is for 1989 but some shrinkage must be anticipated. The U.S. alone exported around 190,000 tons of nonfat dry milk in 1987 against foreign donation programs which have now been suspended in the absence of surplus stocks. Whether such outlets will be filled as commercial purchases by the earlier recipients or by the allocation of Government funds to purchase product and continue this form of aid, remains to be seen.

Assuming, however, for the purpose of this review that the world commercial market for nonfat dry milk under today's constraints was only 850,000 tons, it is possible to make some broad projections of how this requirement might be filled in 1989. Estimates of production in the EC for next year have been placed at around 1.2 million tons (compared to 1.7 million tons in 1987 and 2.2 million tons in 1986). Of this total, it has been estimated that 325,000 tons could be used internally in normal consumption, 600,000-800,000 tons in the subsidized calf milk replacer industry and 100,000 tons purchased by Government agencies for foreign aid. Assuming a low figure of say 625,000 tons for the calf milk industry (which formerly used about 1 million tons) this would leave no more than 150,000 tons available for commercial exports. New Zealand and Australia, two other major producers, are not expected to have available more than 250,000 tons and other producers including Canada, Scandinavia, and Eastern Europe might at maximum provide a further 200,000 tons between them. Based on a world requirement of 850,000 tons, this would therefore leave at least 250,000 tons or 550 million lbs that potentially could be supplied from the U.S. on a commercial basis.

Of course, this projection can only be regarded as very tentative and does not for instance take into account what additional business might be obtained if available U.S. supplies exceeded this quantity and exporters were prepared to aggressively compete with other world suppliers. On the other hand, it does not take into account all of the many complex factors which still have to reveal their true impact on the international market situation. The yet unknown effect of the dramatically higher prices on consumption is one such example. Much of the world's trade in nonfat dry milk goes hand in hand with sales of butterfat for the manufacture of basic recombined milk products either in a condensed or liquid form. Many of the markets for these products are the lesser developed countries of the world who are deficient in their own milk

supplies and often also deficient in consumer purchasing power. Raw material prices are, of course, translated through to the end product cost and with the higher values for both the butterfat and nonfat ingredients now applying, there is a large potential for a fall-off in consumption. Since the escalation has been so rapid and current supplies were contracted many months ago at substantially lower levels, the full effect of the new price levels is not likely to be known until some time in the first half of next year. Should consumption drop significantly, however, this would obviously translate directly back to the supply side. Some shift away from recombined milk products is already taking place in many export markets where instant wholemilk powder is becoming the preferred milk supply because of both convenience and cost. Major dairy producers are encouraging this trend since wholemilk powder is clearly a vehicle for the movement of butterfat in a global market which continues to face declining butter consumption. More wholemilk powder production, of course, means less nonfat dry milk availability against the surviving outlets for this product.

Another major factor which leaves some additional uncertainty about the situation, is the extent to which EC calf milk replacer producers will displace nonfat dry milk in their formulations with other ingredients such as whey and soy. Previously, the EC provided attractive subsidies for these producers to utilize nonfat dry milk at a high level. Usage reached around 1 million tons per year before the recent measures which reduced the amount of subsidy and removed the mandatory usage level. Thus, producers are now free to replace, at their discretion, whatever portion of skim milk they wish with other ingredients. Currently, the consensus seems to be that the level of usage of nonfat will drop, but only by perhaps one third. It can be seen, however, that should the reduction be greater, this would free up additional supplies of nonfat dry milk which, in the absence of any other internal outlet, would no doubt seek a home on the international market.

A final factor which needs to be considered is the extent to which the higher international dairy prices now being achieved might, assuming they were sustained, encourage greater milk production outside the EC. While there may be some exceptions, a backlash of significant production increases does not seem realistic given that most of the established dairy industries are already on a course of containment to minimize the heavy expenditure which support them. Even if the higher returns for nonfat dry milk now being achieved on the international market look attractive, the uncertainty of the worldwide situation for butterfat is surely a deterrent for any substantial move in the direction of increased production. There are some indications that milk production in the Eastern Bloc could increase significantly in the years ahead, but generally, these are areas that are deficient in basic food supplies and the greater part of any additional milk supply is likely to be absorbed internally. The Soviet Union has, of course, been a major factor in the removal of the massive butter surplus in the EC through cut price deals over recent years. Now that the surplus no longer exists, it remains to be seen to what extent this outlet can be sustained at full commercial prices. It seems likely, however, that the maintenance of adequate basic food supplies will continue to be a major issue in the Soviet Union.

In reviewing the commercial opportunities for the U.S. in the international dairy market, one cannot ignore the existing presence we already have with some of the dairy by-products such as whey and lactose. With the changing situation in the EC, the U.S. has the opportunity to establish some lasting alternative markets for these products and seek out more specialized outlets where added value returns can be obtained. Whey and lactose exports from the U.S. have increased significantly in 1988 and this trend seems likely to continue next year. For example, January - August 1988 whey exports from the USA were reported at 41,600 m/t compared to 20,500 in the same period last year, an increase of more than 100 percent. Unfortunately, in the past, the tendency has been for U.S. whey and lactose producers to use the export market as merely a balancing factor between production and consumption in their domestic market with little thought to continuity. If, however, the U.S. is to progressively take its place as a recognized dairy supplier to the international market, producers will need to adopt a new attitude of dedicating a share of their resources to the development of a permanent place in that market. This might involve the upgrading of product quality, changes in packaging standards to suit overseas buyers and a determination to provide regular supplies to their export channels. All of these remarks, of course, apply equally to the primary products of our industry. The international dairy market bears little resemblance to the U.S. domestic market and if the industry is to take advantage of the potential which seems to be developing, it will need to be ready to change some ingrained attitudes and become receptive to the adoption of a more global philosophy than has previously applied.

Significant opportunities for commercial export trade in cheese and other butterfat products may have to wait a little longer for the further dismantling of the world's protectionist trade policies. The current round of GATT negotiations will, however, provide some indication of whether or not a true free global market for dairy products is achievable. In the meantime, it appears that, given no major deviation from the new EC dairy policies and a continuation of the U.S. dairy policies established by the 1985 Farm Bill, the industry at least has an opportunity to develop a permanent share of the commercial world market for nonfat dry milk. Just how large a share this can be depends on many factors both here and abroad. For 1989, however, it seems likely that every pound of product produced in the U.S. which is in excess of domestic requirements could find a buyer in the international market. Given the gap which is likely to exist between the EC export price and the U.S. support price (even allowing for some weakening of the EC domestic price) it seems inevitable that the U.S. will play a major role in influencing the level at which international prices settle. If world consumption levels are maintained and production predictions come true, it is not inconceivable that domestic U.S. buyers will find themselves competing with international buyers.

Through the DEIP and the more recent development of commercial sales, U.S. nonfat dry milk is now being exported to many different countries. It seems probable, however, that because of its geographical proximity and an established history of previous imports from CCC under government programs, Mexico will become a major outlet for commercial sales of nonfat dry milk. Their annual requirements alone amount to some 140,000 tons and although other traditional suppliers such as New Zealand, Ireland, Canada and the United

Kingdom are likely to want to hold a share of that market it is probable that the reduced availability in the EC could leave a gap of at least 50,000 tons per annum for potential supply from the U.S. Other markets which are likely to offer potential for U.S. suppliers are the Far East, including countries like Japan, Indonesia, Malaysia, Philippines, etc. which are all well situated for shipments from our Western producers. The rapidly growing demand in China for milk based foods also offers potential. Other markets in the Caribbean, Central and South America provide good prospects for the U.S. particularly for the growing production in Texas.

While the current demand for U.S. nonfat dry milk may be strong because of limited availability elsewhere, lasting markets will only be obtained with the recognition that as an international commercial supplier, the U.S. has for some time been "out in the cold." The U.S. has some catching up to do to match the other major dairy producers around the world who, for many years, have dedicated themselves to establishing alternative markets to their domestic ones. Requirements of overseas users extend to a lot more than just Extra Grade powder packed in a Government type bag. Quality, packaging, technical servicing and the ability to meet individual specifications, along with continuity of supply and forward pricing, are paramount in the overseas buyer's mind. To capitalize on these new opportunities, the industry may be required to rethink its philosophy and be prepared to channel resources in new directions. In a world where Government agricultural supports are on an inevitable declining trend, these are matters worthy of serious consideration and in fact, may be critical to the continued health of the industry.

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1989 OUTLOOK FOR VEGETABLES

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Overview

Lower Vegetable Supplies for 1988, Slight increase in 1989

The drought of 1988 reduced yields and stressed fresh and processed vegetables, potatoes, sweet potatoes, and pulses. Output for the major categories is expected to drop 6 to 8 percent in 1988 from 863 million pounds in 1987 (table 1). Despite stronger imports and larger carryin stocks, demand has tended to out pace supply in 1988 thus forcing up retail prices. In response to lower output, the retail price index for fresh vegetables, including potatoes, likely will rise 5 percent from 122 (1982-84=100) in 1987. The retail price index for processed vegetables, generally flat, likely will also rise 5 percent from 107 (1982-84=100) in 1987, as a result of the drought reduced production. With stocks at an all time low, the retail price index for processed vegetables is expected to continue rising until next year's production replenishes supplies.

The 1989 vegetable crop outlook depends on among other things, a return to normal weather patterns, increased competition for land, and the public's perception on food safety. Most of these issues facing vegetable producers across the nation will not only have an impact in the 1989 growing season but will likely continue over the next 3 to 5 years. Most vegetable producing regions are still in desperate need of precipitation to replenish soil moisture and irrigation reservoirs. However, in California the water problem is even more acute as growers depend on irrigation water during much of the year when there is little precipitation. The past two seasons in California have been dry, thus depleting reservoirs. If this winter is dry in California, choices will have to be made as to the proper allocation of water use. Competition for land among agricultural crops has placed additional downward pressure on fall vegetable acreage. Because of the drought many field crops were left with insufficient seed supplies, thus some of this fall and winter's vegetable land (primarily in Florida) is being devoted to field corn for seed.

In addition to the exogenous forces working to reduce supplies, the vegetable industry is entering an era where a preponderance of legislation including re-registration of pesticide use, immigration reform, farm worker safety, water quality, and endangered species regulations will further complicate growers' decisions. In general the impact from much of this

legislation will be to reduce acreage in the short run. However, the long run impact will likely be an improvement in both quality and quantity of vegetable production. For example, growers in California depend heavily on irrigation water and the current structure of cost and disposal. However, legislation implemented to deal with water quality issues (Proposition 65) will raise growers' cost of production by placing the burden of clean water on them and could negatively impact short run output and quality. However, in the long run the impact will be an improvement in both quality and quantity of vegetable production resulting from better use of integrated pest management (IPM), biotechnology, expanded use of mechanical harvesting, and widespread changes in irrigation technology and practices.

Utilization Trends and Outlook

Total 1987 per-capita utilization of all commercially produced vegetables in the United States fell 1.4 pounds to 325 pounds as fresh vegetables and potatoes declined for the first time since 1981. This outweighed an increase in freezing vegetable and potato use (table 2). Potato use for freezing posted significant gains, rising 1.5 pounds to 46.5, closing the gap between processed and fresh use. The dip in total per-capita use is not an indication that the long-term upward trend has reversed.

On the contrary, domestic use of vegetables and potatoes likely will continue to grow at about one half of one percent per year over the next several years, and then potentially increase as the proportion of older people and teenagers in the United States increases. Both of these age groups have shown a preference for consuming more vegetables, with the older in fresh forms and teenagers in processed and convenience forms. Also consumption patterns for fresh vegetables and potatoes in Canada, our major export market are very close to those in the United States. Canadians will probably continue to demand a wide variety of vegetables from the United States. Canadian use of vegetables and potatoes was 328 pounds per person, farm-weight basis in 1986 compared to 326 for the United States in the same year. It should be noted that the Canadian vegetable use number does not include tomatoes, which are reported with fruit. Also it should be pointed out that the Canadian number is seemingly larger than that of the U.S. vegetable per-capita use number, especially when tomatoes is added to the total Canadian per-capita number. However, the reporting of per-capita statistics for the two countries are different. Canada imports a larger percent of its vegetables than does the United States and the United States only collects data on the 10 major fresh vegetables.

U.S. lettuce and tomato use, which accounted for 45 percent of fresh vegetable use, each registered declines in utilization, partially due to disease-reduced yields in California lettuce and higher export demand for tomatoes. Per-capita use of these two important vegetables likely did not rise for 1988 as California lettuce continued to suffer from disease in early 1988 and drought-sliced yields in many minor tomato producing States. Total per-capita use for 1988 processing vegetables likely declined due to drought-reduced canning production. Canning accounts for the bulk of processed use.

Per-capita use for all potatoes fell slightly in 1987 to 123.4 pounds. The decline in use resulted from a reduction in fresh potato use which fell from 49.6 to 47 pounds in 1987. Potatoes for freezing, primarily as frozen french fries, continues to grow faster than fresh use. Although the primary use of

potatoes is in fresh forms, freezing use crept within a pound of fresh use last year. This can be primarily attributed to the growth of disposable incomes and changing lifestyles--that is more meals are being eaten away from home. This demand phenomenon has also positively impacted U.S. exports of french fry potatoes to Pacific Rim Countries, such as Japan. Fresh use may pick up in the next few years as product differentiation and the desire for healthfulness continues to find favor with consumers.

Given strong demand for a wider variety of readily available fresh vegetables, use of specialty and other minor vegetables will continue to grow at a faster rate than that of the traditional fresh vegetables. Even though no official per capita use estimates exist for specialty vegetables (like jicama, crenshaw melons, snow peas, and chili peppers) estimates based on both California production and imports, place use between 10 and 20 pounds per person, farm-weight basis.

Vegetable Trade Deficit Continues

Net U.S. trade for vegetables in 1987 registered the fifth and largest deficit since 1982 (table 3). U.S. consumers' continued quest for a year-round supply of quality fresh vegetables and melons has been responsible for much of the gain in the deficit. The deficit for 1988 is expected to close to its lowest level since the early 1980's.

Through the third quarter of 1988, exports of fresh vegetables and melons rose 32 percent from a year earlier to 1.1 billion pounds. If this pace continues, total 1988 fresh vegetable exports could reach nearly 1.7 billion pounds. Exports of this magnitude have not been achieved since 1981 (table 3). During the same period in 1988, exports of frozen potatoes increased 68 percent from the first three quarters of 1987. Frozen potato exports are mostly of french fries destined primarily for Japan. Gains in french fry exports can be largely attributed to the weakening dollar vis-a-vis the Japanese yen and promotion and advertising assistance through the Targeted Export Assistance (TEA) program. Exports to South Korea for 1988 likely will be up from the low 1987 level of 205,030 pounds as a result of both the lifting of restrictive import quotas and the demand generated by patrons of the Olympics.

Exports of fresh potatoes, which go primarily to Canada, likely will be down 28 percent in 1988 to 77 million pounds (table 3). In contrast, 1987 potato exports rose 23 percent to 107 million pounds--the first increase since 1985. Canadian demand for U.S. potatoes dropped this year due partly to their near record 65.9 million cwt 1987/88 crop. The outlook for growth in 1989 fresh potato exports to Canada portends minimal increases due to a smaller U.S. crop. The anticipated ratification of the Canadians' to pass the U.S./Canada Free Trade Agreement (FTA) likely will bring a mixture of changes to U.S. potato producers. In the western areas, the flow of russets to Canada could potentially increase while eastern potato producers may realize increased pressure from Canadian white potato imports.

Imports of frozen broccoli and cauliflower increased 3 percent in 1988. Although higher, this was far less than the 73 percent increase in 1987. Imports of frozen broccoli and cauliflower account for about 95 percent of total frozen vegetable imports and come primarily from Mexico's Bajio region. Imports

of frozen broccoli and cauliflower, which accounted for 67 and 15 percent respectively, of 1987 imports for these two commodities, have grown an astounding 38 percent per year since about 1983. The increased size and importance of these imports has raised much concern in the California industry about unfair import competition. However, the presence of U.S. interests in the Mexican vegetable industry makes it difficult for the U.S. vegetable industry to speak with one clear voice on this issue.

Mexican imports accounted for about 84 and 95 percent of all the 1988 imported frozen broccoli and cauliflower in the United States, up from 83 percent each in 1983. Mexico appears to have a competitive advantage over California in the frozen broccoli and cauliflower market, because it has lower total labor and land costs. The recent U.S. immigration law, now being implemented, could increase agricultural wage rates in the United States and result in an even wider disadvantage. However, some evidence points to Mexican producers facing some of the same water quality issues and pesticide tolerance level issues as California producers. This could eventually force Mexico to slow the torrid growth in vegetable exports and may also result in higher costs of production.

Imports have also risen for fresh vegetables from other smaller countries trying to compete for share of the U.S. fresh vegetable market. The Caribbean Basin Initiative (CBI) countries have increased imports of selected vegetables 82 percent between 1983 and 1987, although they represent only about 5 percent of total fresh vegetable imports. Imports from the CBI countries in 1988 were above a year earlier, although the pace could temporarily decline as several of the countries were hit with major hurricanes this past fall. The impacts of the hurricanes are expected to hurt these countries export abilities into 1989 as much of their transportation and marketing structure was disrupted.

Vegetable Cash Receipts

The U.S. vegetable sector is one of the most diverse, least subsidized, and financially successful components of U.S. agriculture. Its 22 thousand farms (1 percent of all farms) commercially produce more than 42 distinct commodities, generating 15 percent of all crop cash receipts, \$1.2 billion in agricultural exports, and close to a tenth of U.S. agriculture's net cash income.

Cash receipts for all vegetables (including potatoes) are expected to have declined 3 to 5 percent this year from the record \$9.2 billion of 1987. Much of this decline can be attributed to low potato prices earlier in the year and the negative effects of the drought on processed vegetable production. Many fresh vegetables were not be able to repeat strong 1987 performances in 1988 as grower prices for lettuce and onions in particular averaged below their inflated levels of a year earlier. Potato receipts likely fell a tenth or more from the \$1.5 billion of 1987 while prices nearing \$30 per cwt at times helped keep the decline in dry bean cash receipts under 10 percent.

Mainly because of the drought, total domestic vegetable output in 1988 was likely 6 to 8 percent below 1987. Despite the severe drought, except for a few commodities such as dry beans and broccoli, no concentrated push came from grower prices to fully offset the negative impacts of reduced output on receipts. Assuming the hot dry weather experienced this summer does not repeat

itself in 1989, output and cash receipts should recover for potatoes, dry beans, and other fresh and processing vegetables.

Another important consideration for vegetable growers concerns costs of production which increased in 1988 and are expected to rise in 1989. Prices paid by farmers for all inputs are expected to increase 4 to 6 percent next year compared with a 5 percent rise in 1988. Production inputs important to most vegetable growers such as fertilizers, pesticides, seed, and marketing containers likely will carry higher prices in the coming year. Part of this increase will undoubtedly occur as a result of stronger demand for these items from producers of program crops (corn, soybeans, etc) who will be planting more area in 1989. Thus, rising costs will again dictate the continuation of the battle by vegetable growers to control expenses and seek out alternatives to costly inputs (such as chemical pesticides) which have some possibility of adding to the marginal revenues of the farm.

Commodity Outlook

Major Fresh Vegetable Acreage Rises

Harvested acreage for all fresh-market vegetables in 1988 is expected to have risen slightly over the 1.1 million acres harvested last year, as increased winter and spring acreage offset lower summer and fall acreage. Lower fall acreage was harvested in California broccoli and cauliflower, down 6 percent, as growers adjusted to stronger frozen imports which compete with the fresh acreage. Fall area for Florida sweet corn dropped 17 percent as some growers chose to raise seed corn for the 1989 field corn crop, as this summer's drought significantly reduced the normal seed crop. Fall area in Texas for other unreported vegetables is also down as seed corn competed for land.

Production of the 10 fresh vegetables (asparagus, broccoli, carrots, cauliflower, celery, sweet corn, lettuce, onions, tomatoes, and honeydews) for 1988 likely will be down slightly from 219.6 million cwt in 1987 (table 1). ERS projections for fresh vegetable production through 1992 call for a trend increase of 1.3 percent per year. The increase in production is a response to higher per capita disposable incomes, population growth--especially in ethnics, and increasing age of the population (since older people tend to consume more fresh vegetables).

The index of prices received by growers for fresh vegetables is expected to fall 2 to 4 percent this year compared with 147 (1977=100) in 1987, mainly due to more normal lettuce prices this year (table 4). Most of the reduction in grower prices came in fourth-quarter 1988 as compared to a year earlier which offset increased first-quarter and third-quarters. Grower prices for the fourth-quarter of 1988 could be down more than a tenth from the same period last year. Assuming average weather, grower prices in the first-quarter of 1989 are also expected to average a tenth the 162 (1977=100) in first-quarter 1988 as the white fly infestation in California appears to be less severe.

The consumer price index (CPI) for vegetables, including potatoes, followed the same path as that of the grower price index in the first three quarters of 1988 as consumers' became more dependent on national supplies in retail stores due to tighter local supplies this past summer. However, the 1988 CPI for all

vegetables is expected to rise 5 percent in 1988 (table 4). The divergence between the grower and retail price levels is attributable to higher marketing costs in retail stores due in part to the increased space allocated and more intensive management required. Packaging costs have also continued to rise as retailers expand consumers' choices, impacting the price of those fresh commodities which are now pre-packaged. The most important fresh vegetables in the CPI are potatoes, lettuce, and tomatoes. Retail prices for lettuce and tomatoes averaged 25 and 8 percent higher so far in 1988 than in 1987. In 1989 the CPI for vegetables likely will be slightly higher than this year's as supplies of fresh vegetables are expected to return to more normal levels.

Contracted Processing Production Declines in 1988

Production contracted for the processing of snap beans, sweet corn, green peas, and tomatoes in 1988 totaled 217.3 million cwt, 6 percent lower than 1987 and the lowest level in three years (table 1). Processing tomatoes, which account for about 66 percent of processed output, increased fractionally in 1988. However, severe drought cut production of the other three crops enough to leave total contract output 6 percent below a year earlier. The drought had a substantial impact on production of snap beans, sweet corn, and green peas for processing (mostly canning) in Wisconsin, Minnesota, Michigan, and Illinois.

This year's smaller production translated into smaller packs for the canning industry. However even with larger combined carryin stocks, supplies of canned vegetables will be reduced until next season's harvest. Reduced quantity of snap beans, sweet corn, green peas and other minor canned items sent wholesalers scrambling to procure enough supply to meet their contracts. By mid-August canners were quoting f.o.b. prices 25 to 35 percent higher than at the beginning of the summer for the three major canning vegetables. Even though Midwest canning prices increased the most, some substitution occurred and f.o.b. prices for freezing vegetables in the Pacific Northwest also moved up.

Higher wholesale prices were quickly reflected in the consumer price index (CPI) for processed vegetables. The CPI for processed vegetables likely will rise 4 percent in 1987 (table 4). This is the largest year over year increase since 1983, the last year a drought impacted the midwest region. With supplies of processed vegetables fixed at low levels, the CPI is expected to remain above year earlier levels through next season's pack.

Even though wholesale and retail prices rose this year, grower prices for processed vegetables are not expected to follow the same path. Grower prices are contracted in the spring of the year and generally are only adjusted at harvest for quality and quantity. Since the drought lowered both of these, grower prices for some vegetables were adjusted downward. However, processors will have to pay much more to growers in 1989 as supplies will be nearly depleted and growers will be looking at alternative crops with bullish markets.

Potato Production Dropped in the 1988/89 Season

Total 1988 potato production dropped to 352 million cwt, 9 percent below last season's and the lowest level since 1983 (table 1). The drought impacted the summer and fall harvest, wiping out strong gains in both winter and spring output. The drought's impact was felt in the midwest States during the critical sizing month of August which resulted in lower yields.

Prices received by potato growers will likely average above a year earlier during the 1988/89 season as the smaller fall storage crop results in reduced stocks and stronger competition for available supplies from both processing and table stock users.

With potato prices up this season, potato acreage likely will rebound in the 1989/90 season. Growers tend to respond the following season to higher or lower prices by planting more or less acreage, thus continuing the cycle. Growers may experience stronger processor demand in the next few years as continued strong export demand is expected for frozen french fries, and the introduction of a vending machine to sell freshly cooked frozen french fries could expand the market. According to market studies, growers of round white potatoes may also be able to improve their price outlook by adjusting their use of varieties to conform to consumers' needs.

Drought Reduced Dry Bean Production

This past summer's drought is expected to cut 1988 dry bean production 24 percent to 20 million cwt--its lowest level since 1983. Production of dry beans in 1989 is expected to return to trend levels of around 24.9 million cwt (table 1). Producers have found dry beans more attractive in the past several years as demand for some of the specialty beans increases and the potential for substantial exports exists.

Because the drought has pared stocks and boosted prices of program crops such as corn and soybeans, 1989 dry bean planted acreage is expected to be between 1.5 and 1.6 million acres. This moderate increase is expected to occur next season in the face of 71 percent higher bean prices this season. As production in 1989 is not expected to expand dramatically, season average grower prices likely will only drop to around the \$20-\$22 per cwt (table 4).

Other restrictions on dry bean production in 1989 may come from expansion of the Endangered Species Act. The teeth of this Act comes from its restriction of pesticides used on various crops, primarily for soybean, wheat, and other crops. However, as EPA continues to add new endangered species, the area could coincide with dry bean area. Also U.S. dry bean growers are concerned about Canada's inclusion of dry beans in its Tri-partite subsidy program, which provides a payment for producers for any deficit between market prices and the cost of production. The funding comes from the Canadian Federal Government, participating provincial governments, and growers. This program could keep Canadian production unrealistically high, since Canadian growers only pay one-third the cost of the program instead of bearing the full weight of production costs. As Canadian supplies compete with U.S. bean supplies in the world market, Canadians may develop a competitive advantage and expand their exports at our expense.

Table 1.--U.S. production of major vegetables, 1980-92

Year 1/	Vegetables		Potatoes	Dry Edible Beans	Total
	Fresh	Processing			
Million cwt					
1980	191.9	191.1	303.9	26.4	713.3
1981	196.4	184.4	340.6	32.2	753.6
1982	207.9	223.6	355.1	25.0	811.6
1983	197.9	205.4	333.9	15.5	752.7
1984	217.1	227.9	362.6	21.1	828.7
1985	217.9	221.9	407.1	22.1	869.0
1986	216.3	219.5	361.5	22.9	820.2
1987	219.6	231.6	385.5	26.3	863.0
1988	210.5	217.3	352.1	20.0	799.9
1989	226.0	221.1	377.0	24.9	849.0
1990	228.9	225.3	380.0	25.0	859.3
1991	231.9	228.2	384.0	25.2	869.4
1992	234.9	231.2	387.0	25.3	878.4

1/ The data in the years after 1987 are based on ERS baseline estimates.

SOURCE: National Agricultural Statistics Service and Economic Research Service, USDA.

Table 2.--Total per capita utilization of major vegetables, selected years

Year	Vegetables				Potatoes				Mushrooms				Sweet Dry peas potatoes & lentils	
	Grand Total	Total fresh & processing	Fresh 1/ Canning 2/	Fresh 3/ Total fresh & processing	Fresh	Freezing	Chips 4/	Other 5/	Total fresh & processing	Fresh	Processing	6/		
Pounds per capita														
1970	304.4	175.3	70.6	91.4	13.3	62.3	27.1	17.4	14.0	1.3	0.3	1.0	6.4	0.6
1975	304.8	176.4	73.5	88.9	14.0	119.8	52.6	35.0	15.5	16.7	2.0	0.7	1.3	0.4
1980	309.1	185.7	80.5	90.6	14.6	114.9	51.0	35.9	16.7	11.3	2.9	1.2	1.7	0.4
1981	295.8	173.9	79.3	80.0	14.6	113.1	45.7	38.2	16.8	12.4	2.9	1.4	1.5	0.4
1982	300.6	174.7	82.3	78.9	13.5	115.9	46.6	40.1	17.2	12.0	3.2	1.4	1.8	0.4
1983	303.3	176.7	82.5	79.5	14.7	117.5	49.9	38.1	17.9	11.6	3.2	1.6	1.6	0.5
1984	320.2	190.2	87.6	85.2	17.4	120.1	48.8	41.4	18.1	11.8	3.7	1.8	1.9	0.4
1985	324.1	192.4	88.0	87.5	16.9	121.3	46.6	44.0	17.7	13.0	3.6	1.8	1.8	0.5
1986	326.4	193.0	89.6	87.6	15.8	124.1	49.6	44.0	18.2	12.3	3.7	1.9	1.8	0.4
1987	325.0	192.2	88.0	87.1	17.1	123.4	47.0	46.5	17.7	12.2	3.7	1.9	1.8	0.4
1988f	323.1	191.0	89.0	85.0	17.0	122.7	46.5	47.0	17.0	12.2	3.7	1.9	1.8	0.4

f/ Includes asparagus, broccoli, carrots, cauliflower, celery, sweet corn, lettuce, onions, tomatoes, and honeydews.

1/ Includes asparagus, broccoli, carrots, cauliflower, celery, sweet corn, lettuce, onions, tomatoes, and honeydews.

2/ Includes asparagus, snap beans, carrots, sweet corn, green peas, pickles, and tomatoes.

3/ Includes asparagus, snap beans, broccoli, carrots, cauliflower, sweet corn, and green peas.

4/ In lutes shoestrings.

5/ Includes canning and dehydrating.

6/ Includes canning, freezing, and dehydrating.

SOURCE: Economic Research Service, USDA.

Table 3.--Total vegetable imports and exports, selected years

Year	Net Trade 2/	Imports			Exports 1/				
		Vegetables			Potatoes				
		Fresh	Canned	Frozen	Fresh	Processed	Total	Fresh	Processed
1970	(429,999)	1,808,237	1,604,164	19,990	172,200	587	1,378,238	943,879	82,274
1975	228,417	1,768,449	1,546,610	34,699	142,000	17,401	1,996,866	1,312,911	115,200
1980	333,157	2,745,865	2,349,353	152,150	156,993	12,130	3,079,022	1,529,846	352,274
1981	448,624	2,753,430	2,002,729	85,838	392,355	19,628	3,202,054	1,807,426	400,548
1982	(652,711)	3,484,952	2,321,101	551,322	478,450	25,762	2,832,241	1,521,127	350,248
1983	(660,319)	3,349,795	2,352,931	513,131	339,764	29,007	2,689,476	1,527,465	312,844
1984	(2,004,338)	4,567,866	3,251,388	646,746	445,344	56,058	2,563,528	1,577,926	269,342
1985	(2,312,939)	4,358,557	3,067,446	618,653	404,488	76,764	2,045,618	1,192,893	276,289
1986	(2,346,785)	4,699,431	3,398,900	634,232	345,266	82,520	2,352,646	1,239,600	326,294
1987	(2,654,419)	5,200,766	3,695,737	563,060	497,784	101,578	2,546,347	1,297,096	373,106
1988f	(1,784,896)	5,136,040	3,843,567	613,735	179,202	143,225	3,351,144	1,714,761	518,617

1,000 pounds

1/ Exports of vegetables and potatoes to Canada, which account for about 80 percent of total exports, have deteriorated significantly since 1980.

2/ Net trade is defined as exports minus imports. Quantities are reported in product weight.

SOURCE: Bureau of the Census, Dept. of Commerce.

Table 4.--Vegetable, potato and dry edible bean prices and indices, selected years

Item	Unit	1970	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988f	1989f
Grower prices:													
Fresh	:	:	:	:	:	:	:	:	:	:	:	:	:
: 1977=100	:	56	88	110	135	120	129	133	122	123	147	143	124
Commercial	:	103	164	196	136	126	130	135	129	130	144	140	133
Potatoes	:Dollars/cwt:	2.21	4.48	6.55	5.42	4.45	5.82	5.69	3.92	5.03	4.47	5.6	5.25
Dry beans	:Dollars/cwt:	9.21	21.1	27.6	21	14.2	22.4	18.7	17.6	19.1	15.5	26.5	21
Wholesale prices:													
Fresh	:	55.1	84.5	84.3	104.7	100	102.3	106.8	100.3	99.4	99	98.2	86.9
Potatoes	:1982-84=100:	41.7	75.6	103.3	131.1	100	106.5	132.4	101.3	104.1	120.1	150.5	141.1
Dry beans	:1982-84=100:	25.7	49.7	81	117.5	100	74.5	94.6	84.8	64.1	78.7	134.6	106.6
Retail prices:													
Commercial	:	39.4	55.6	79	93.7	94.2	97.2	108.2	103.5	107.7	121.6	128	129
Potatoes	: 1982-84=100:	38	57.7	19.1	25	21.1	20.6	24.2	20.8	24.1	27.6	34.6	32.4
Processed	: Cents/lb :	36.6	62.2	83.1	93.2	98.2	98.6	103.3	104.4	104.2	107.1	111	115
	: 1982-84=100:												

SOURCES: National Agricultural Statistics Service, USDA and Bureau of Labor Statistics, Department of Labor.

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1989 OUTLOOK FOR FRUIT AND TREE NUTS

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The fruit industry expects substantially smaller supplies of noncitrus fruit this year. Early spring frost, high temperature, drought conditions, hailstorms, and tree stress from last year's bumper crop all contributed to a smaller crop for many noncitrus fruits. However, increased production of apples, pears, and tart cherries can be expected in the years ahead as more trees will reach their full bearing potential and if good weather prevails. In contrast, this season's citrus crop is projected to be moderately larger than last season as the crop in Florida and Texas continues its recovery from the early-1980's freezes. Since some of the freeze damaged trees have been gradually replanted, the downward trend for citrus acreage has ended. According to Florida's 1988 Biennial Commercial Citrus Survey, a significant gain in citrus acreage is reported from 1986 (the first acreage inventory survey after the freeze) to 1988. The 1987 Texas Citrus Acreage Survey also reported acreage increases since the 1983 freeze. Therefore, Florida and Texas stand to significantly increase production in the future. Tree nut supplies this season will be relatively large even with smaller almond, filbert, and walnut crops.

Demand for fruit and tree nuts has been strong, particularly for export markets during the last season. Despite increased competition in the world market, the weak dollar and the increased promotional activities with the Targeted Export Assistance (TEA) program have boosted exports. This situation is expected to continue as the dollar is still weak and the promotional activities continue. Domestic demand is likely to remain strong from the healthy economy. Strong demand and reduced supplies are expected to strengthen noncitrus prices to levels above a year ago, but increased citrus supplies are likely to weaken citrus prices to levels below last season's high. Overall, fruit prices are likely to average slightly to moderately above last year.

GENERAL FRUIT PRICE OUTLOOK

Reversing the price rises of the last 2 months, the October index of grower prices for fresh and processing fruit fell fractionally from September and was 5 percent below a year ago. Prices are expected to decline further this fall and early winter when supplies increase seasonally. Larger citrus supplies are likely to keep this winter's citrus prices below a year earlier. However, with noncitrus supplies below year-earlier levels and stable demand from the healthy economy, noncitrus prices should be above last year's low.

Table 1.--Index of quarterly prices received by growers for fresh and processing fruit, 1985-88

Year	1st	2nd	3rd	4th	Annual average
1977=100					
1985	180	178	182	180	180
1986	154	161	190	176	170
1987	163	180	185	200	182
1988	166	178	176	1/185	

1/ October's figure only.

SOURCE: Agricultural Prices, NASS, USDA.

Retail prices of fresh fruit continued to rise in September, primarily because of higher orange prices. The BLS Consumer Price Index (CPI) for fresh fruit stood at 153.3 (1982-84=100) in September, 2.1 percent above August and 16.4 percent above a year ago. Over the first 9 months, retail prices of fresh fruit have averaged 6.8 percent above last year. With seasonal increases in supplies of citrus, apples, and pears, the CPI for fresh fruit is likely to drop this fall, but should remain above a year earlier.

Table 2.--Quarterly Consumer Price Index for fresh fruit, 1985-88

Year	1st	2nd	3rd	4th	Annual average
1982-84=100					
1985	114	121	119	110	116
1986	113	121	124	117	119
1987	129	138	133	129	132
1988	132	143	150		

SOURCE: Bureau of Labor Statistics.

Retail prices of processed fruit have averaged 9.9 percent above a year ago during the first 9 months of this year. The CPI for processed fruit advanced to 123.8 (1982-84=100) in September, up 0.3 percent from August and 10.4 percent from a year ago. With canners' recent price hikes, retail prices of processed fruit are expected to rise. Rising demand will also keep dried fruit prices high, while frozen concentrated orange juice (FCOJ) prices are likely to fall somewhat in view of expanded Florida production and sluggish movement.

Table 3.--Quarterly Consumer Price Index for processed fruit, 1985-88

Year	1st	2nd	3rd	4th	Annual average
1982-84=100					
1985	108	109	110	109	109
1986	108	106	105	106	106
1987	108	111	112	112	111
1988	118	122	123		

SOURCE: Bureau of Labor Statistics.

FRESH CITRUS

The 1988/89 U.S. citrus crop forecast (excluding grapefruit in California's "other areas") is 13.5 million short tons, up 8 percent from 1987/88 and 15 percent from 1986/87. Although the crop continues its recovery from the early-1980's freezes in Florida and Texas, it is still well below the record 16.5 million short tons of 1979/80. Larger crops were forecast for all citrus except tangelos. Even with expected stable domestic demand and strong export markets, citrus prices are likely to fall below last year's high.

Table 4.-- U.S. citrus production, 1979/80, 1987/88, and 1988/89

Crop	1979/80	1987/88	1988/89	Change from	
				1979/80	1987/88
	1,000 short tons			Percent	
Orange	11,832	8,457	9,288	-22	10
Grapefruit 1/	2,875	2,623	2,769	-4	6
Lemons	789	785	863	9	10
Temples	270	160	171	-37	7
Tangelos	288	189	176	-39	-7
Tangerines	408	212	217	-47	2
Total	16,462	12,426	13,484	-18	8

1/ Excludes California grapefruit in "other areas".

SOURCE: Crop Production, NASS, USDA.

Oranges

Substantially Larger Crop
And Lower Prices Expected

The 1988/89 orange crop forecast is 217 million boxes, 10 percent more than last year and 20 percent above 1986/87. This would be the largest crop in the

last 5 years, but still 22 percent below the 1979/80 crop. California's 1988/89 all-orange forecast, at 61 million boxes, is 8 percent greater than last year and 5 percent above 1986/87. The Arizona all-orange crop is estimated at 2.4 million boxes, 33 percent more than last year, but 11 percent below the 1986/87 crop. The Texas all-orange crop is expected to total 1.65 million boxes, compared with 1.43 million last year and .88 million in 1986/87.

On-tree returns for U.S. oranges in October averaged sharply below a year ago, primarily reflecting greater supplies of California valencias. With more valencia supplies remaining from 1987/88 and seasonally increased 1988/89 supplies, fresh orange prices are likely to remain weak this fall and winter. In addition, f.o.b. prices for FCOJ are likely to fall, so Florida orange prices for processing use may fall below a year ago. However, reduced supplies of apples and winter pears may moderate declines for fresh oranges.

Exports Down Significantly

Exports of U.S. fresh oranges through August of the 1987/88 marketing year (November-October) totaled 303,712 metric tons (including Canada), down 16 percent from a year earlier, as reduced shipments were reported to all major destinations. Higher prices have weakened foreign demand. In addition, limited supplies of large fruit from this year's California valencia crop reportedly hindered exports. Prospects for U.S. orange exports will be favorable in 1988/89 because of anticipated lower prices, increased supplies, the weak dollar, and continued promotional activities.

Grapefruit

Moderately Larger Crop Likely To Weaken Prices

The 1988/89 U.S. grapefruit crop, excluding California's "other areas," is forecast at 667 million boxes, 5 percent above the previous season and 15 percent more than 1986/87. Florida's forecast is a record 57 million boxes, up 6 percent from the previous season and 4 percent above the previous record in 1979/80. The California desert grapefruit forecast is 3.9 million boxes, down 7 percent from last season. Arizona's forecast, at 1.3 million boxes, is down 13 percent from last season. Texas continues to recover from the December 1983 freeze through replantings, with the 1988/89 crop forecast at 4.5 million boxes, compared with 3.8 million last season.

Opening prices for fresh grapefruit were lower than a year ago and are expected to fall further with increased shipments. The f.o.b. price for Florida pink grapefruit was quoted at \$6.39 per carton in Indian River in late October, compared with \$7.65 a year ago. Domestic demand for fresh grapefruit is likely to be stable in 1988/89 because of the healthy economy. Movement of processed grapefruit products has been sluggish because of higher prices, so processor demand does not look favorable. Export markets are expected to stay strong, given the weak dollar and increased promotional activities. Nevertheless, the moderately larger crop is expected to push grapefruit prices below a year ago.

Lemons

Significantly Larger Production

The 1988/89 Arizona-California lemon crop (tree crop available for harvest) totals 22.7 million boxes, 10 percent above last year, but 21 percent below 1986/87. California expects a crop of 18.5 million boxes, 9 percent more than last year. Arizona's crop is forecast at 4.2 million boxes, 15 percent more than 1987/88.

Despite the larger crop, movement through late October was behind last season's pace. The decrease was attributable to reduced shipments to processors; deliveries to the fresh market rose 3 percent. Export shipments were up substantially from last season. Early-season f.o.b. prices were significantly higher than a year earlier, but increased shipments have weakened prices substantially. In late October, the f.o.b. price for fresh lemons was quoted at \$10.69 per carton, compared with \$12.23 a year ago. Larger supplies will push the season-average price down.

PROCESSED CITRUS

Because of the record juice yield and the larger Florida orange crop, Florida's 1987/88 production of FCOJ totaled 170 million gallons, up 18 percent from the previous season. Processors recovered 1.55 gallons of FCOJ per box at 42 degrees Brix, compared with 1.51 in 1986/87. The larger pack and carryin stocks have weakened imports into Florida and the United States as a whole to levels well below a year ago. According to the Florida Citrus Processors Association, imports into the State (mostly from Brazil) totaled 47.4 million gallons (42 degrees Brix) through late October, down 27 percent from a year earlier. However, the 1987/88 Florida supply of FCOJ is expected to be somewhat above last season's 265 million gallons.

Movement of Florida FCOJ has been running ahead of last year's pace, due mostly to increased bulk movement. Some bulk FCOJ is reprocessed into chilled orange juice (COJ) because of strong consumer demand. Higher prices and increased competition from COJ have weakened demand for consumer-size FCOJ packages. Through late October, total movement of Florida FCOJ was 206 million gallons (excluding products delivered in fulfillment of future contracts), up slightly from a year ago. Following market promotions this summer, f.o.b. prices have been steady at \$5.28 a dozen 6-ounce cans, Florida canneries. This compares with \$4.76 a year earlier. However, in the wake of the unexpectedly larger orange crop estimate, Florida packers have offered discounted prices for retail-package FCOJ, unadvertised brand. FCOJ export demand is likely to benefit from the increase in the Japanese import quota to 15,000 metric tons in 1988/89 Japanese fiscal year (JFY) from 8,500 metric tons in 1987/88 negotiated under the U.S.-Japan Trade Agreement.

The higher Florida prices are mostly attributed to price hikes by Brazil during the 1987/88 season. Brazil raised FCOJ prices from \$1,995 to \$2,020 per metric ton (f.o.b. Santos) on August 26. The increase was mostly due to tight juice stocks at the end of the 1987/88 season (July-June), and low juice ratios and slower-than-normal crush at the beginning of 1988/89. Brazil lowered its FCOJ price to \$1,845 per metric ton on October 12, but raised it to \$1,895 in late October. This compares with \$1,300 a year earlier.

FCOJ stocks as of October 29 were moderately above a year ago. Nevertheless, it appears that carryover stocks could be slightly to moderately below the 40 million gallons of last season. With the prospect of increased FCOJ pack during 1988/89 and sluggish movement, consumer-packed FCOJ prices may fall some more during the winter, barring a freeze.

The larger Florida orange crop and relatively high juice yield will result in increased output of FCOJ, near 183 million gallons in 1988/89. The 1988/89 juice yield is forecast at 1.52 gallons a box at 42.0 degrees Brix. But, even with the increased pack and relatively large carryin, the 1988/89 domestic FCOJ supply will not be adequate to meet domestic demand. Consequently, imports (mostly from Brazil) will remain relatively large, but likely below 1987/88.

FRESH NONCITRUS

The 1988 noncitrus crop--including major tree fruits, grapes, and cranberries--is forecast at 13.5 million short tons, down 9 percent from 1987, but still 7 percent above 1986. The adverse weather and tree stress from last year's bumper crop all contributed to a smaller crop for many fruits this year. Most of the decline was the result of sharp dropoffs in the apple and pear crops from last year's record production. Smaller crops were also recorded for apricots, cherries, and prunes and plums. Larger crops of peaches, nectarines, grapes, and cranberries only partially offset the decline. Prices are likely to be higher than a year earlier.

Table 5.--U.S. Production of Selected Noncitrus Fruit, 1986, 1987, and indicated 1988

Crop	1986	1987	1988	Change from	
				1986	1987
	1,000 short tons			Percent	
Apples	3,967	5,271	4,067	3	-23
Apricots	55	115	101	84	-12
Cherries	250	390	272	9	-30
Grapes	5,226	5,265	5,457	4	4
Nectarines	172	191	195	13	2
Peaches	1,164	1,214	1,264	9	4
Pears	766	940	798	4	-15
Prunes/Plums	491	978	812	62	-19
Strawberries	510	534	562	10	5
Total	12,601	14,897	13,528	7	-9

SOURCES: Noncitrus Fruit and Nut and Crop Production, NASS, USDA.

Apples

Sharply Smaller Crop And
Higher Prices Expected

The final forecast for the 1988 U.S. apple crop, 8.13 billion pounds, is down 23 percent from last year's record. Tree stress, winter freeze,

hailstorms, and drought all reduced production. However, production could reach another record in the next several years if good weather prevails. Also, more trees will reach their full bearing potential in several major apple-producing States.

The Eastern States expect a crop of 2.87 billion pounds, 3 percent below a year earlier. New York, the leading producer in the East, expects to harvest 5 percent fewer apples. The apple forecast in the Central States, at 1.11 billion pounds, is 30 percent less than last year. A sharp dropoff in Michigan contributed to most of the decrease. Production in the Western States is forecast at 4.15 billion pounds, unchanged from the August 1 forecast, but still 30 percent below 1987. Reduced production is indicated for all States in the region except New Mexico, where output remains unchanged from last year. Washington, the Nation's leading apple State, expects to harvest 3.2 billion pounds, off 33 percent from last year's record crop, but still 1 percent above 1986. Tree stress probably contributed to the decline.

Because of the smaller crop, shipments of fresh apples are running well behind last year's pace. Through late October, reduced shipments were reported for most major apple-producing States. Shipments from Washington declined 20 percent from a year ago. As a result, prices are strong. In late October, the f.o.b. price for Red Delicious apples in Yakima Valley-Wenatchee, Washington, was mostly \$13.30 a tray pack, size 80-113, U.S. Extra Fancy, compared with \$7.50 a year earlier. Supplies of apples for the fresh market, particularly Red Delicious, will be well below a year ago, and prices substantially higher. However, the larger California navel orange crop may moderate fresh apple price increases somewhat. Apple prices for processing use have been negotiated substantially above a year ago even though processor demand is not favorable.

The trade picture for fresh apples improved significantly in 1987/88, with exports up 74 percent from the preceding season. This reflects increased supplies, lower prices, the weak dollar, and continued marketing promotion and development. The outlook for this year is not as bright as last year, because of smaller supplies and higher prices. Larger crops and trade regulations abroad will also cut U.S. apple exports.

Grapes

Larger Crop Forecast

The 1988 U.S. grape crop is forecast at 5.46 million short tons, 4 percent above last year's production and 2 percent above the 1983-87 average. The increase is due to expanded production in California. California's grape production is 4.95 million short tons, 6 percent above last year. Reflecting reduced production in Washington, New York, Pennsylvania, and Michigan, grape production in States other than California is estimated at 506,500 short tons, down 16 percent from 1987, but still up 11 percent from 1986. Washington, the second largest grape producer in the United States, expects a crop of 185,000 short tons, off 26 percent from 1987.

The later harvest has resulted in reduced shipments of table grapes, totaling 1.04 billion pounds through late October, off fractionally from a year ago. Despite reduced supplies, table grape prices have been weak. In late October, the f.o.b. price for Ribier was quoted at \$8.10 a 23-pound lug in the

central San Joaquin Valley, compared with \$8.50 a year earlier. Fresh-market supplies will be up this season because of the larger crop. The use of table grapes for the fresh market is expected to rise because of strong domestic demand. Table grape exports are expected to continue to grow as promotional activities are expanded. During the first 3 months of 1988/89, exports of table grapes were 34,025 metric tons, up 19 percent from a year earlier.

Because of the larger wine grape crop, use of California grapes for crushing has exceeded last year's. However, wine supplies in California probably will not increase appreciably because of lower stocks. Demand for domestic wine has weakened somewhat. According to the Wine Institute, California wine shipments through July 1988 were down slightly from a year ago. The decrease was attributed in part to sluggish wine cooler sales. Imports of table wine through August fell 10 percent, with smaller purchases from all major producing countries. The weak dollar has resulted in higher prices for imported wine, and weak sales. Imports are likely to remain sluggish. Relatively strong demand for domestic wine and higher prices for imported wine have held wine prices above a year ago. The BLS Consumer Price Index for all wine during the first 9 months of this year averaged 2 percent above a year earlier.

Pears

Sharply Smaller Crop

The final forecast for the 1988 U.S. pear crop is 798,100 short tons, down 15 percent from last year's record, but 4 percent more than 1986. The bartlett crop in California, Oregon, and Washington is forecast at 485,000 short tons, down 16 percent from last year, but 4 percent more than 1986. Output of Pacific Coast pears other than bartletts is forecast at 276,000 short tons, 16 percent less than 1987, but almost 6 percent above 1986. Reduced production is reported from all three States, but acreage has increased.

Because of the smaller crop, shipments of pears are running well behind last year's pace. Consequently, f.o.b. prices for Washington bartletts have been substantially above year-earlier levels. In late October, the f.o.b. price was quoted at \$16.90 a 36-pound carton for sizes 90-135 in Washington, compared with \$10.50 a year ago. Because of the smaller crop and strong processing demand, California pear growers have settled with processors for a field price of \$200 a short ton for canning bartletts, up \$20 from 1987. This is the second highest price established in the last 35 years. Reflecting the smaller crop, opening f.o.b. prices for winter pears at shipping points in early October were also well above a year ago. The f.o.b. price for D'Anjous in Yakima Valley, Washington was quoted at \$14-\$15 a carton (size 100) in late October, compared with \$11 a year earlier. The smaller crop and reduced supplies of apples will keep f.o.b. prices for winter pears above year-earlier levels.

PROCESSED NONCITRUS

Decreased crops of apples, bartlett pears, apricots, cherries, and prunes and plums are expected to result in less canning than last year. However, the larger clingstone peach crop resulted in a greater pack of canned peaches and fruit cocktail. A total of 14.8 million cases (No. 24/2-1/2's) of canned clingstone peaches was packed, up 17 percent from last year, while a 4-percent increase in canned fruit cocktail is reported. On the other hand, a trade

source indicates that the pack of canned mixed fruit totaled 2.4 million cases (No. 24/2-1/2's), down 7 percent from last year. Supplies of canned fruit will be tight again during 1988/89 because of depleted carryin stocks. As a result, prices should stay high. Packers have already announced price hikes for several canned fruit items. The September Producer Price Index advanced to a record 114.8 (1982-84=100), up fractionally from August and up 1 percent from a year earlier.

The smaller apple crop will reduce the canned apple product pack. Although data for canned apple product stocks are not available, the industry says that inventories are relatively large. The actual reported inventories vary considerably by products and regions--more so than in previous years. Sauce inventories, compared to last year and to normal, are reported to be up slightly in the East, unchanged in the Central States, and up sharply in the West. Canned slice inventories are down slightly. Juice is down slightly in the East, unchanged in the Central regions, and up again in the West.

The industry also foresees a substantial reduction in raw apple usage for processing from this year's crop, compared to 1987. The major change will be for juice, which is expected to be down from last year. Even with reduced pack, the relatively larger carryin stocks will keep supplies adequate to meet market demand. However, the higher prices for processing apples are likely to raise canned apple product prices.

Output of raisins is about the same as last season. At present, trade estimates place total raisin output at 360,000 short tons, compared with 1987's 358,000 short tons. Thus, with larger carryin stocks, the 1988/89 supply will still be relatively large. However, strong demand and higher field prices are likely to keep raisin prices firm. The BLS July Producer Price Index for raisins (the latest available), stood at 88.2 (1982-84=100), 5 percent above a year earlier.

The 1988 pack of frozen fruit and berries is expected to be below 1987. Large stocks of frozen strawberries at the beginning of the season have slowed deliveries to freezers in California. Reduced demand has also caused slow deliveries of processing strawberries. Imports of frozen strawberries, mostly from Mexico, have been well below year-earlier levels during 1987/88 (December-August). Deliveries to freezers in Oregon and Washington were also down substantially. Even with a smaller pack, supplies of frozen strawberries should be adequate during 1988/89 because of larger carryin stocks. Prices are not expected to rise appreciably, because raw berry prices are generally lower than last season. With a much smaller crop, 100.6 million pounds of tart cherries have been used for freezing through August 1, compared with 124.7 million a year ago. However, larger carryin stocks will ensure adequate supplies of frozen cherries. The smaller apple crop is also expected to result in decreased deliveries to freezers.

As of October 1, cold storage holdings of frozen fruit and berries totaled 983 million pounds, up 10 percent from a year ago. Relatively large stocks were indicated for most fruit and berries, with peaches recording the largest increase, up 64 percent from last year. Demand and prices for frozen fruit and berries will likely stay stable, given the healthy economy.

TREE NUTS

U.S. supplies of most tree nuts will be large this season. Larger crops are estimated for pecans and pistachios, while smaller crops are expected for almonds, filberts, and walnuts. Export demand looks favorable because of large supplies, the weak dollar, and the increased promotional activities. Domestic demand is expected to be stable from the healthy economy.

Almonds

The 1988 California almond crop was forecast at 580 million pounds (shelled basis), 12 percent below last year's record 660 million pounds. Some trade sources indicate the crop is lower than forecast, and major suppliers have recently withdrawn from the market, waiting for harvest to be near completion and supplies to be more definite.

Export demand is expected to continue strong and may break previous records, as almonds are favorably priced at current exchange rates. Domestic demand is also expected to continue strong, and per capita consumption of almonds in the United States may reach a new record. Grower prices are expected to average above \$1.00 per pound this season, compared with 95 cents for the 1987/88 marketing year.

Filberts

Oregon and Washington filbert (hazelnut) growers are expecting to harvest 18,000 short tons this year, compared with 21,800 in 1987. Filbert production and grower prices appear to be rebounding in the 1980's. Opening prices showed shelled extra large filberts at \$1.83 per pound, f.o.b. West Coast, while the in-shell large size opened at 73 cents per pound. Major sellers have withdrawn from the market, and reportedly the crop is virtually sold out.

World production of filberts is forecast at 541,330 metric tons, 29 percent more than last year. Although the U.S. crop is lower this year, a bumper crop of 360,000 metric tons is expected in Turkey, up 29 percent from 1987. A heavy crop is also forecast in Italy, where production is expected to reach 140,000 tons, 56 percent higher than 1987. Filbert imports into the United States, January 1 through August 1 this year, totaled 2.82 million pounds, or 12 percent below the same period in 1987. Most imported filberts are from Turkey, the world's largest supplier.

Pecans

The October 1 forecast for the pecan crop in the 11 estimating States has increased to 284 million pounds, (in-shell basis), 8 percent higher than 1987 production and 4 percent above 1986. Trade sources indicate total pecan supply similar to a year ago. New crop pricing is expected soon and should be well established before the Thanksgiving holiday. Old-crop prices have been quoted at \$1.90-2.00 per pound and fancy halves at \$2.35-2.40 per pound, f.o.b. Southeast.

Pistachios

The forecast for California's 1988 pistachio production was 95 million pounds (in-shell basis). However, based on harvest data the California Pistachio Commission has recently revised the original estimate to 85 million pounds. This is the largest crop ever and significantly above last year's small crop of only 33 million pounds. Pistachio production is cyclical due to the alternate bearing characteristics of pistachio trees. Major suppliers withdrew from the market following opening prices in mid-September. Recently some suppliers have quoted prices 15 cents per pound over opening levels, which brings roasted and salted extra large pistachios to \$2.50, large to \$2.40, and medium to \$2.15 per pound, f.o.b. West Coast.

Trade sources project that total supply of snack type pistachios may total about 78 million pounds. Total sales last season were 50 million pounds, and projected sales for the 1988/89 season should be higher. In-shell imports of pistachios totaled 1.9 million pounds from January 1 through August 1, up 51 percent from the same period in 1987. Most U.S. imports of pistachios are from Turkey, but are very small compared with past years when pistachios were imported from Iran. California production is expanding rapidly to meet domestic demand and the ban on imports from the world's largest supplier, Iran.

Walnuts

California's 1988 walnut production was forecast at 200,000 short tons, in-shell basis, 19 percent lower than last year's record, but 11 percent above 1986. The crop has been adversely affected by the hot, dry summer, which resulted in shriveling of kernels and drying problems. Both domestic and export shipments of in-shell and shelled walnuts were strong during the 1987/88 marketing season. Total in-shell shipments in 1987/88 were nearly 143 million pounds, compared with 132 million in 1986/87. Shelled walnut shipments totaled over 126 million pounds in the 1987/88 season, compared with 106 million in 1986/87. Total stocks on hand at the beginning of the 1988/89 marketing season beginning August 1, converted to kernel weight basis, were 60.3 million pounds, compared with 28.4 million in 1987 and 52.5 million in 1986. With a large carryover and normal production, supplies should be ample to meet domestic and export needs. Prices are expected to remain firm.

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"A LOOK INTO THE FUTURE FOR FRUITS AND VEGETABLES"

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Manager

California Fresh Market Tomato Advisory Board

The purpose of this presentation is to discuss several factors that will effect the production of fruits and vegetables in the next five years. Since my background is primarily in fresh vegetable production and marketing, many of the comments will refer to them, however, I have been a tree fruit grower for the past 20 years and some of the comments will apply to both areas.

I will address three areas of concern; chemical use, labor, and market absorption based on consumer demand. Each of these issues require a minimum of 5 hours and 200 pages to address properly so I will concentrate on the high points of each area. For further information on each issue, I will be happy to provide additional information upon request.

MAJOR ISSUES THAT WILL IMPACT GROWERS:

Chemical Use

Production of fruits and vegetables is in a precarious position due to forced changes in chemical use patterns. Many growers are unaware of the impact of environmental legislation that is continuously eroding the availability of agriculture chemicals. Growers have been led to believe that agriculture chemicals are; 1.) necessary to their production and profitability; 2.) safe to the user as well as the consumer; and 3.) safe to the environment.

1. In the area of necessity, many growers firmly believe that they cannot exist without the use of chemicals. They have become somewhat complacent in this area because of the availability of product and in many cases, competition among suppliers. The myriad of salesmen for years have given the impression that "more is better". This has created a generation of growers from the "chemical age" that do not believe in any other method of production. They are convinced that

chemicals will always be required for their production, and will be available in the necessary quantities.

2. For years growers have operated under the assumption that any chemical registered for use was totally safe to the applicator, the field worker, and the consumer. They relied on the governmental system to evaluate the products and establish safe use patterns. With the recent attacks from environmental groups in the past few years, growers turned to governmental agencies for protection and were left out in the cold. Suddenly, it was the producer who was the culprit, being portrayed as a "money grabbing nozzle head" who was out intentionally poisoning the world in order to reap huge profits. The chemical companies who manufactured the product and the distribution companies who sold the product established elaborate marketing systems to spread the word on the advantages of chemical use. They held seminars and field days on the proper use of their products. As the companies competed for market share, the underlying message was clear to the growers - the product is safe when used per the label instructions. This position was supported by the Cooperative Extension system and the regulatory agencies.

3. When presented with all of the information on use safety, growers were also told the compounds they used were safe for the environment. A classic example was the belief that simazine, a residual herbicide used on grapes and tree fruit, only penetrated 6 inches into the soil. Additional scientific study showed that the active ingredient actually moved through the soil to the ground water source. The blame for contamination was then placed on the growers who applied the material per label instructions. Environmental groups have been successful in passing legislation and initiatives that address the contamination issues and force the growers to change chemical use patterns. Growers are unsure at this point how the change in practices will affect their operations since the impact is just now reaching the field application level.

How all of this will affect growing practices in the future is still unclear. Each year, more and more effects of re-registration legislation is being felt. In 1988, many tools believed to be necessary for production came under review and some were discontinued. An example of the effect is the elimination of carrot oil, a non-toxic petroleum compound used as a herbicide in carrot production. The registrant discontinued the product because of the high cost of filling the data gaps for re-registration. As more and more compounds go through this process, the industry will be forced to seek alternatives to production. At this time, the most favorable alternative for the large packers is to seek production facilities and growers outside the United States, primarily in Mexico.

Labor Availability

Farm labor availability will be one of the major governing factors in the growth of production agriculture. The overall impact of

immigration legislation has not been felt and many growers are unsure of the future. Some experts in the field of farm labor feel that supplies of workers will be adequate, however, labor rates will increase as agriculture competes with urban areas for the same labor force. Historically, agriculture has been able to survive labor shortages through mechanization and creative operations. Should labor become a major issue, the industry will again have to develop methods to deal with the situation. Where it may cause a ripple in the flow of product, it certainly will not cause a major disruption.

The labor issue will have a significant impact on the decision of large handlers to move their operations out of the country. This is already being seen in the increased activity of United States packers with operations in Mexico. When coupled with the loss of chemicals, the labor problem makes foreign production even more attractive.

Market Absorption

The amount of vegetables produced in the United States is basically a factor of market absorption. Since the turnaround time for vegetable planting is so short, the industry can respond quickly to market demand factors. In our studies at the Board, we do not track planted acreage to determine volume of sales. Acreage figures will give a broad picture of available crop, but it is not a good indicator of market conditions and volume of shipments. As an example, planted acreage for fresh market tomatoes was down by 10 percent in California in 1987 but shipments for the same period from that acreage increased by over 20 percent. This was due to a strong domestic market created by severe weather conditions in Florida and Mexico. In 1988, plantings were again at the same level as 1987 and shipments were up due to the drought conditions in the midwest.

The good news on the horizon for fruit and vegetable growers is the increased awareness by consumers to reduce the intake of fats and eat more fresh produce. This has been presented to the public from the health industry as one of the most important decisions a person can make to reduce the threat of cancer and heart disease. In California, a pilot program, sponsored by a grant from the American Cancer Institute and administered by the Department of Health Services, is underway to raise the per person intake of fresh fruits and vegetables. The current consumption level in the United States is 250 pounds per person. The goal of the program is to increase the level to 500 pounds per person per year. Canada has already raised the level to 500 pounds and the level in Europe is 700 pounds. As you can see, the United States is far behind the rest of the world. The thrust of the California plan is to encourage consumers to eat five servings a day and is built around the theme of "five a day for better health".

Vegetable producers throughout the country will benefit from an overall increased consumption of fruits and vegetables, and each commodity will jockey for market share of the increase. However, all commodities will share in the program. As market absorption improves, acreage will increase following strong market periods. Due to the narrow margins currently being experienced by growers, it is unlikely

that acreage will increase based merely on speculation for a strong market.

PROJECTIONS FOR THE COMING FIVE YEARS

A. Domestic Vegetables:

Production of domestic vegetables will continue to increase as the per capita consumption increases. This will be a reactionary factor with the planted acreage responding to increases in market absorption. The availability of chemicals and labor will be the governing factors on how much domestic production increases. With chemicals becoming less and less available, the producers of some commodities will be forced into looking at alternative growing methods and in some cases, alternate growing regions. Production practices are already refined to the point that very little is left to increase production without increasing acreage. Research programs in the future will be concentrating on finite improvements in varieties, and resistance to new diseases and pests. It is unlikely that technology will be able to stay ahead of the legislation process to eliminate ag chemicals causing pressure on the domestic producers to seek alternatives. These alternatives may come in organic or "sustainable" agriculture or in relocating to a more favorable environment.

B. Imported Vegetables:

The amount of vegetables imported to the United States will show a steady increase over the next five years. The majority of the increase will come from Mexico as more packers move south to avoid the strict regulations being imposed on the domestic producers. Additionally, labor is readily available in Mexico. The fact that the labor rate is lower is somewhat offset by the quality of the labor and the distance to the U.S. marketplace. Production costs are lower, but the overall cost of doing business is higher, making the landed cost of goods at the border relatively equal. The deciding factor will be the continuing erosion of tools for production and the increasing pressure for social reforms domestically. As the minimum wage goes up, along with requirements for additional benefits among farm workers, the balance between domestic production and imported production will continue to shift. Examples of this philosophy can be seen in the new production and packing facilities being built in areas of Mexico that previously have been fallow. The companies that are concentrating on this area are the large corporations with a diverse product line and brand recognition. Many are companies that have been successful in domestic and foreign production. They have proven that the market will accept product from any origin as long as it meets the quality standards expected by the consumer.

CONCLUSIONS

In spite of the negative factors, the outlook for vegetables is very

bright. The food safety issue will decline as a negative factor when retailers realize that the marketing advantage is gone and some other gimmick takes its place. The scientific community will continue to prove that the food supply is safe and that an effort is being made to increase the safety factor. Per capita consumption will increase as the health message reaches more and more consumers.

The only problem facing the industry will be the race between technology and legislation. If technology can develop economically sound solutions to the environmental issues quickly, domestic production will continue to flourish. If not, production of vegetables will go the way of other production industries in the United States, and we will be a consuming nation of foods rather than a producing nation. Agriculture is one of the last true producing industries left in the United States and it is in danger of losing that position. The fresh fruit and vegetable industry needs its own agenda to deal with the threat, and needs to work together to develop programs that will insure a strong producing industry. Efforts are currently underway through the major trade associations for fruits and vegetables to strengthen the voice of producers. Currently, a task force is in place to explore the avenues available for a combined effort on behalf of all commodities for improved research and promotional activities. Additionally, governmental agencies must work together with producer organizations to develop policies that create a positive atmosphere for consumers. Through this partnership, the agricultural strength of this nation can be maintained and hopefully improved.

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2 A FARMER'S PERSPECTIVE ON SUGAR POLICY AND WHERE IT IS HEADED

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American Sugarbeet Growers Association

I am pleased to be here and thank the Department for the opportunity to speak to a policy which ultimately was designed for sugar farmers and those parts of rural america which are highly dependent on the sugar industry.

The 1985 Food Security Act was passed to assure ample supplies of food. There are those who make this legislation out to be good will or charity to the farmers. But most of the people in this room know that little is done here in Washington for purely humanitarian reasons. No, there is a very good contract in place here which says that we, the country, realize that we have a self interest at stake with you farmers, so we are willing to help you with those problems which are beyond your control. You, in turn, give us that Assured Supply--and while you're at it, make it cheap. We have been lucky as a country because we know little of what it's like to be without that Assured Supply. But occasionally you get a little taste of short supply. There is probably no greater example of this than what happens here in Washington when a snow storm hits. I understand most people go running to the grocery stores to stock up because they don't want to be caught short of food. And that's just because a few trucks might not be able to move for a day or two.

As a farmer trying to assure this supply, there are two things which I cannot effectively predict or control--the weather and the markets.

The Weather - Ultimately every part of this business of food production--supply, demand, public policy, ag economics, rural life, and international trade can be traced to this single thing, the weather. The most variable of all variables, it is absolutely random and unpredictable. Let me share an example of what it's like to be a farmer, and at the same time begin to explain the importance of this program.

On July 20th 1987 (Last Year), I felt like the luckiest farmer in the world. As I usually do first thing in the morning, I jumped in my pick-up and set out to look over the crop. That morning I saw a lush wheat crop just starting to ripen. My barley was standing tall and would soon be ready to harvest--a harvest that I knew would be good, if not the best. My soybeans and sugarbeets were thick, healthy, and deep green, and held all the promise of being one of those bumper crops that all farmers dream of.

We had overcome all the obstacles which Mother Nature had thrown at us, and now knew we were only days away from having a truly great crop. At 6:10 that evening, I sat down to eat supper. Storm clouds had been building all day. In an instant, a hail storm riding on 60 mph winds struck and struck hard. In a matter of 15 minutes the wheat and barley were chiseled to the ground. The soybeans were shattered and ripped apart. The leaves on my sugarbeet crop were almost completely chopped off. Months of work, and all the money I invested in hopes of making a profit, had just been reduced to a pile of rotting vegetation. It continued to rain. By 6:10 the next day, ten inches had accumulated, drowning out much of the soybeans and sugarbeets which otherwise would have survived.

Now, I don't tell you this in hopes that you will feel sorry for me. Actually, when you take on Mother Nature and beat her, I can't think of anything that is more exhilarating. That's why each spring I'm willing to take the risk again. For most of you, the weather is just something you keep tabs on to decide whether to wear your galoshes, bring an umbrella, or wear your warm coat. For me, the weather is essential. As a manager, I don't cause it, I can't control it, but I must deal with and survive it. I tell you this because it is part of the reason why we have and need a sugar program.

The Market. Tied to the weather, it is also something which I can't effectively predict or control. The best word to describe the international markets in agricultural products is confusion. Everyone here is aware of the mess that has been caused by endless governmental policies that impact the so-called world market. You all know how screwed up ag trade is and that the biggest mess of them all is sugar. We have debt-ridden economies; Capitalism vs. Communism; the have-nots wanting to have and the haves trying to figure out how to get rid of it. Everyone is standing in a circular firing squad waiting for the guy across to pull the trigger.

As a nation, we are on the right course because we are the beacon for the only rational answer. That is competitiveness, which in the end must be the test. In spite of all the distortions, U.S. sugar farmers are competitive producers. Too often people just ignore this, and I am at a loss as to how this can be. Here is the great looming issue above all others. The mess in the world sugar trade is there, it will not go away, and we must deal with it. U.S. policy did not cause it, and changing the U.S. policy will not solve it.

Hopefully, the GATT negotiations will help, and it's why we support the whole idea of zero subsidies. I suspect though, that even if all nations agree to the concept, the next test is trying to decide how each of the sugar producing nations gets off the back of this tiger we have been on for so many years.

So, here I am as a farmer stuck with few options. As long as I can't do anything as an individual, and as long as I am an efficient producer (which I am), and as long as other countries insist on distorting the world market, I have no other alternative but to seek the assistance of my country to stand up for me.

I believe that F.D.R. once said, "Government must do those things for people which they cannot do for themselves." If you knew farmers like I do, the whole idea of government help really goes against our grain. However, in the case of weather and the markets, you have two things that farmers cannot and should not have to deal with alone. That is why farmers of all commodities come to Washington, and that is why we have and need a sugar program.

Economic Impact. Farm bills should really be called "Rural America" bills. This year Congress addressed the drought and sent the much-needed relief against the worst natural disaster in North Dakota's history, as well as

That of many other states. Why? Because it was not just the farmer who was in trouble, but the whole agricultural economy. In fact, the only thing the farmer will get to do with his drought relief check is endorse it. It will go out to pay the bills to businesses and communities whose primary, if not only, source of income is the farmer. The farmer is always the last person in production agriculture to get paid, and in those drought areas, most farmers will register substantial losses.

The image of the farmer as the noble peasant is a fallacy. What he really is, is the economic lynchpin of his community and the agri-industry which, when totalled, is the biggest business in America.

Sugar production is a part of that business, and in many regions of the country its presence is vital to many more people than just the farmer. In my home, the Red River Valley of North Dakota, an independent study by North Dakota State University showed that the sugar industry has an economic impact of one billion dollars. Thirty thousand jobs in that valley rely on the sugar industry. Just to keep that number in perspective, North Dakota has 650,000 people--not jobs, people.

Believe me, if an industry that size could be attracted to either North Dakota or Minnesota, untold amounts of tax dollars would be spent, the governors would travel untold numbers of miles, and special sessions of the legislature would be called. It has been done for less. The economic impact of the sugar industry in the sugar areas around the country is concentrated and powerful. Imagine what the economy of the Silicon Valley would be like without computers: imagine Detroit without cars, and even Washington, D.C. without government. In North Dakota the impact would be more severe, because there is nothing else to grow and nothing else to do.

Every other crop we can grow in that region has suffered long-term surplusses and low prices. There are no other jobs because we can't seem to attract the capital for new industry in any substantial amounts. The absence of a sugar industry would damage communities whose educational and health care systems are already crippled by the farm crisis of the '80s. We are experiencing wholesale consolidation of school systems as one after another fails financially. My kids go to school with kids who travel 30 miles one way to school. Two weeks ago, one of my family's closest friends gave birth to their baby boy in the family van on the way to the hospital because they are forty miles from the nearest hospital that could provide the care that every newborn deserves. It is worse out of the Valley in western North Dakota, where the crisis has been even more severe. This same scene is being played all over the midwest. The same set of circumstances applies in almost all of our sugarbeet growing areas.

So I say again that farm bills are "Rural America" bills. Sugar farmers, like other farmers of other commodities, are the starter on an engine that powers a huge agribusiness, which drives the economies and communities of whole regions in this country.

The Price Issue. When I go to purchase a new tractor from my implement dealer, my intention is to get it as cheap as I can, but we eventually reach a point where we both know that the dealer must have his price. So, we come to an agreement. Now it's entirely possible that if I searched long enough and far enough, I might find that tractor cheaper, and maybe not. But I must have that dealer close to me assuring me of a supply of parts and more tractors, and giving me service and products which I can count on. So I don't begrudge him his profit, and I don't ask him to operate at a loss.

The whole issue of sugar prices has boiled down to an issue between the domestic sweetener industry and the large industrial user. First of all, let me say that the sugar users are some of the sweetener industry's best customers. They deliver high quality products to the consumer which are safe, attractive and satisfying. But let's not forget for one moment that in the process of making these products available, major users have earned their place as some of the most profitable businesses in our economy.

Names like Mars, Hershey, Kelloggs, Coca Cola and Pepsi are synonymous with America, and I want them to do even better. But I must have my price, just like my machinery dealer needs his. In the debate over price, these folks suggest that I take a reduction of 6¢ per lb. in the loan rate. What does that do? For the American sugarbeet industry it means about a \$300 per acre loss and the end of the domestic industry. What does it mean to the candy bar and soft drink industry? I know that a 1¢ drop in sweetener prices means \$80 million to the soft drink industry which, for the fourth consecutive year, is the number one most profitable industry in the U.S., according to Forbes Magazine.

The Mars family is the richest family in the U.S. and third richest in the world behind the Sultan of Brunei and King Fahd. Mars and their fellow chocolate manufacturers are going to make some money. Now these folks have tried to make this into a consumer issue, saying the consumer pays a higher price. A top confectionary C.E.O. has publicly stated that when a competing company raises its prices, they tend to follow suit, because the wholesaler will increase the price on all products, regardless of cost.

Now, I hardly call that a consumer-orientated, price competitive business when you raise your price in response to your competitors' price increase because your wholesaler will take the money if you don't.

Time and again, the evidence shows that any savings in sugar purchase prices are not handed down to the consumer. And the consumer knows it. According to a recent survey of 1500 adults, it was found that 86% of consumers believe that food manufacturers keep the price of their products about the same when cost of ingredients like sugar go down. Eighty percent also said they thought the current price of sugar was fair.

Let's just stand back and look at the consumer argument for a second. That the industrial users are investing huge amounts of money and hiring some of the most high-powered people in this town to lobby for a reduction in the sugar prices. Do you believe that they are doing this so they can ultimately give it all to the consumer. Now that would be very generous of them. But if you believe that, I've got some farm land in North Dakota that I'd like to sell you.

No, the bottom line is this. A reduction in the loan rate is a transfer of dollars from rural America to increase profits of food companies. This is not a consumer issue.

Finally, let me address the issue of market access. Whenever I look at this world market mess, I think of a quote of the English Diplomat Sir Harold Nicolson, "For some of the world's intractable problems, there are no answers, only adjustments." Everyone in this room understands the dynamics of this problem, so I will not go through it in detail--the American sugarbeet growers share concern for the shrinking quota for our exporting friends,

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such as those in the Caribbean. We know these people and visit with them on a regular basis. We understand. But we feel their problems lie directly at the doorstep of the European Economic Community. They are the predominant player in the world market, whose sugar policy, as well as overall ag policy, has gotten completely out of hand. They continue to pour highly subsidized sugar out into a depressed market. I read an article that suggested that our program is, at least in part, the cause. The American Sugarbeet Growers Association has always viewed our farm bill section as a reaction to the unfair trading practices of others, and in particular the EEC. "Who did what first?" is an appropriate question in these matters. And it wasn't us. That does not mean we are not concerned. We're hoping we can help find an answer. But, in our view, this is a national concern which should be addressed by the nation. The answer to that concern is not to take out the domestic industry. In an October 12 joint article by Secretary Lyng and Ambassador Yeutter, they said, "Unilateral disarmament is no more attractive commercially than it is militarily." What a terribly bitter pill to swallow for my people when it would, in effect, hand our business to the EEC who caused the problem in the first place.

In conclusion: I spelled out a very complex problem here--complicated for everyone. But, in the end, we rest our case on our competitiveness. A competitiveness for which the American farmer is world renowned because he never ceases day or night to improve upon it.

Sugar farmers are these same farmers, but we are worried. We're worried for our farms and communities. Worried we are being caught in some distorted power struggle both internationally and domestically, which will unjustifiably hurt us. We're good folks, we work hard, we're efficient and proud of it, and all we ask is that our government sees to it that we get a fair shake.

ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

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RELATIVE PRICE SUPPORT LEVELS FOR SUGAR AND OTHER CROPS

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It is often useful to step back and take a longer term view of any agricultural policy issue. This is particularly true in regard to price support levels for various commodities. The price or revenue guarantees that the government provides to producers of a commodity seldom turn out to be appropriate for the circumstances that actually develop.

There are three reasons for this. First U.S. support levels themselves are the result of a political process where the give and take of coalition building can easily skew the outcome in one direction or another. Second, the process itself is essentially reactive. It responds to imbalances that have developed but is not always sensitive to where underlying structural and technological changes might be taking us. Finally, and most importantly, we are not always very good at predicting the future. Productivity growth varies among different sectors of American agriculture, the broader macroeconomic setting is subject to great uncertainty, world weather patterns can sharply alter supply conditions, and one cannot easily forecast the actions of producers or governments in other countries.

The Food Security Act of 1985 was no different in these respects than its predecessors. Three years after passage of that legislation it is abundantly clear that there are some serious imbalances among programs for the different crops. Most notable among these are the following:

- o The corn program is so generous that farmers cannot be induced to expand soybean acreage even when soybean prices are high.
- o The support provided to oats is so meagre that we have created an artificial shortage.
- o The marketing loan programs for rice and cotton have been criticized by producers who believe they are not working as intended.
- o The sugar program is overly generous relative to programs for other crops.

These imbalances among commodities have probably become large enough to force some real changes in programs, not just an extension of current policy. They could even be big enough to prompt early consideration of farm legislation, but will in any case play a role in preparation and debate of the next farm bill.

Last summer's drought legislation contained the first tangible sign of Congressional concern about relationships among programs. It did so by allowing soybeans and oats to be planted on permitted acreage for other program crops without adversely affecting a farmer's acreage base. But even this move does not enable soybeans to compete with corn's generous target price.

There are other signs of a problem with soybeans. For the first time in history we are importing large volumes of soybean oil -- at the same time that we are subsidizing soybean oil exports. This is just another symptom of the underlying problem.

The crux of that problem is that support levels for some crops are way out of line with what it costs to produce those crops. This is readily apparent in the accompanying charts which portray developments for those crop years covered by the 1981 and 1985 Farm Bills. For the selected crops, each chart compares the loan rate and target price to two measures of production cost: cash expenses and total economic cost, as defined by USDA. The cost data are from USDA's Economic Indicators of the Farm Sector. In the case of soybeans there is no target price. In the case of sugar beets and sugarcane, where there is no loan rate at the crop level, I have charted the average price received by farmers to represent the support price. The levels projected for beets and cane for the 1988-1990 crops are the 1985-1987 crop averages.

The case of corn is an interesting starting point. As with the other grains and cotton, corn has a loan rate and a target price. The loan rate is \$1.77/bu. this year while the target price is \$2.93/bu. The basic idea is that market prices should be free to fluctuate while the government provides some type of safety net. One logical floor is a price that covers the average out-of-pocket cash expense that a farmer incurs in growing a crop -- but not other costs such as machinery replacement or a return to land or other capital. For corn, cash expenses are in the range of \$1.50-1.75 per bushel, so the loan rate does not look too unreasonable.

But the total cost of producing corn is only about \$2.00/bu. while the government is committed to giving the farmer a total return of \$2.93/bu. if he participates in any required acreage reduction program. With a target price almost 50 percent above production costs, it's no wonder that farmers want to grow corn.

Rice and sorghum also have target prices about 50 percent higher than full cost of production. In comparison, target prices for wheat, barley and cotton are only about 10 percent above costs; the soybean loan is equal to costs, and the oats target price is well below costs.

I would be the first to point out that production costs are not always a good guide to where to set support levels. The reason for this is that cost structure is

itself influenced by government programs. A generous support level is quickly capitalized in the value of the land and any specialized equipment used to produce that particular crop. But these differences among crops are so dramatic that one cannot overlook them.

The differences are important not just in economic terms but in political terms. Most of the budget outlays in recent years have been for feed grains --62 percent in fiscal 1987 and 63 percent in fiscal 1988. The more that the CCC spends on corn in the future, the less will be available for other interest groups. And they are well aware of this.

What about the sugar crops? There we encounter the split personality of the sugar industry's farm component. Sugar beet growers are in the same position as corn growers -- the program gives them a price 35-40 percent above full cost of production and double their actual cash costs. But sugarcane growers are in a position more akin to that of soybean producers -- the support price is about the same as full cost of production but well above cash costs.

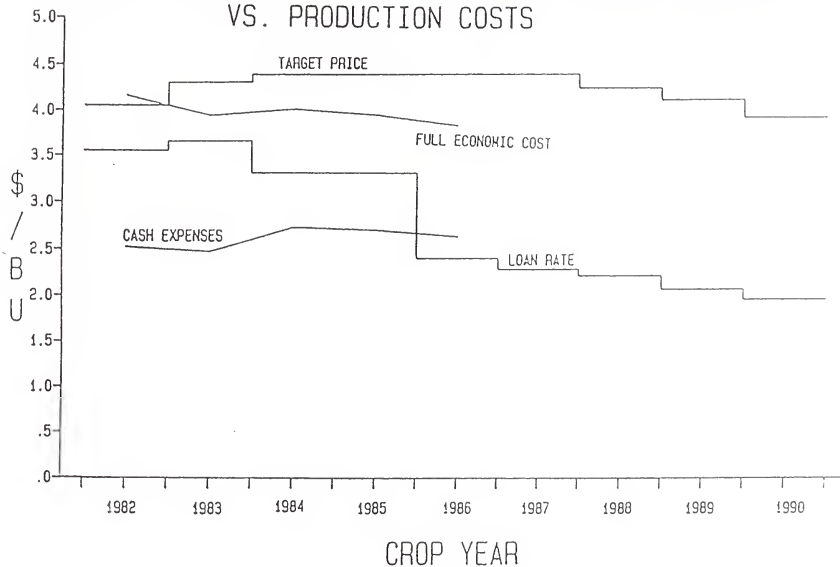
Note finally in the case of all these crops that production costs have generally been declining in recent years in nominal terms. This means there have been very sharp declines in real terms since inflation has totaled 14 percent between 1984 and 1988. The main factors behind lower costs have been rising yields and declines in interest rates and in the prices of energy, fertilizer and chemicals. Lower land rent has also contributed.

Costs for the 1988 crops will bounce up somewhat due to lower yields caused by the drought, but costs will subsequently resume their downtrend in real terms, and perhaps even nominal terms, for two reasons. First, the underlying growth in productivity of U.S. agriculture will continue. Second, the certainty of further declines in target prices for grains and cotton will keep farmers in a cost-conscious mode of operation.

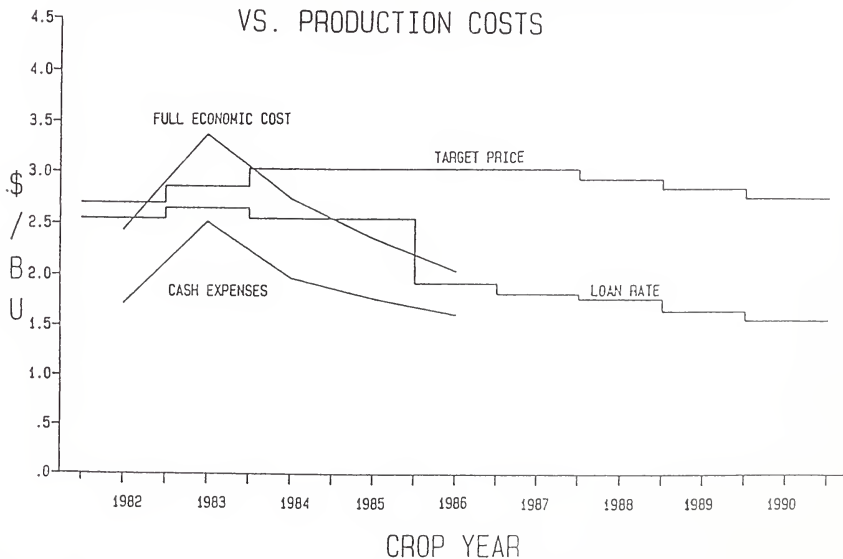
It remains to be seen whether these imbalances among commodities with respect to the relationship between support levels and production costs will be addressed explicitly in the next round of farm legislation. After all, it can be very difficult politically to single out a particular program for corrective action. But these large differences in the relative generosity of the various crop programs suggest a number of conclusions that bear on future U.S. sugar policy:

- o Commodity and farm groups may not be as united as they were in 1985.
- o Sugar's constant support level sticks out like a sore thumb in relation to the cuts some other commodities are taking.
- o And the profitability of sugar beet production under a program that does not even have a downside like an acreage idling requirement insures that beet plantings, production and processing capacity will continue to expand in coming years if current support levels are extended.

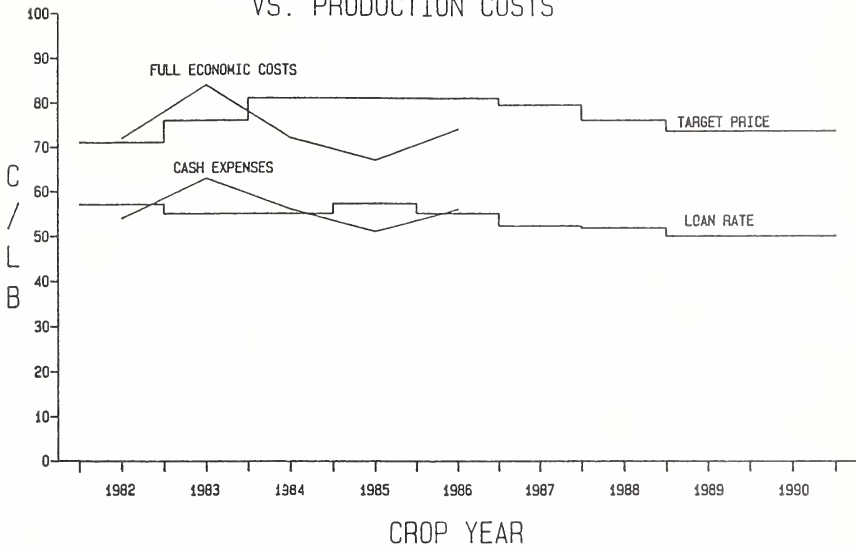
WHEAT: PRICE SUPPORT AND INCOME SUPPORT MEASURES VS. PRODUCTION COSTS



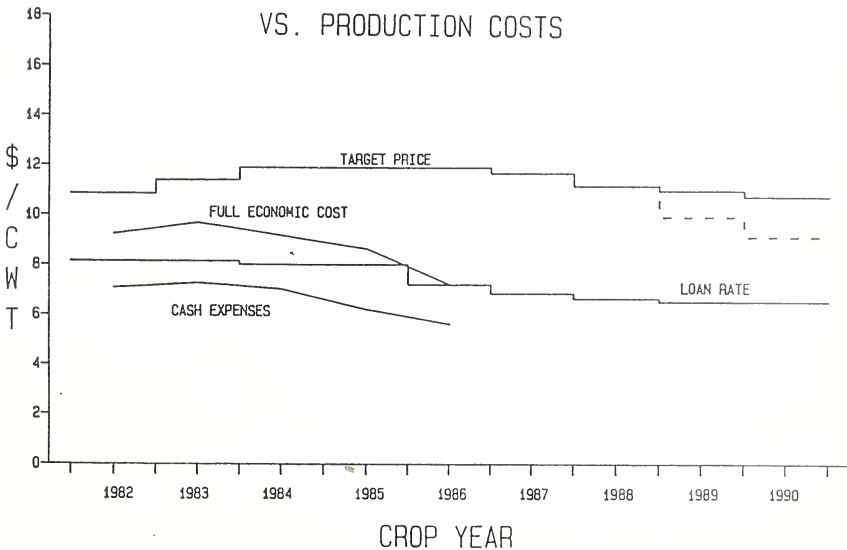
CORN: PRICE SUPPORT AND INCOME SUPPORT MEASURES VS. PRODUCTION COSTS



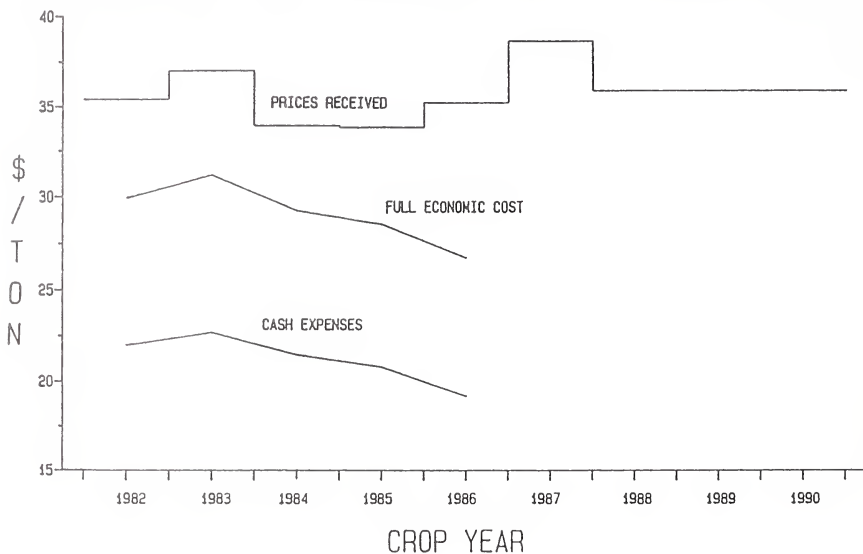
COTTON: PRICE & INCOME SUPPORT MEASURES VS. PRODUCTION COSTS



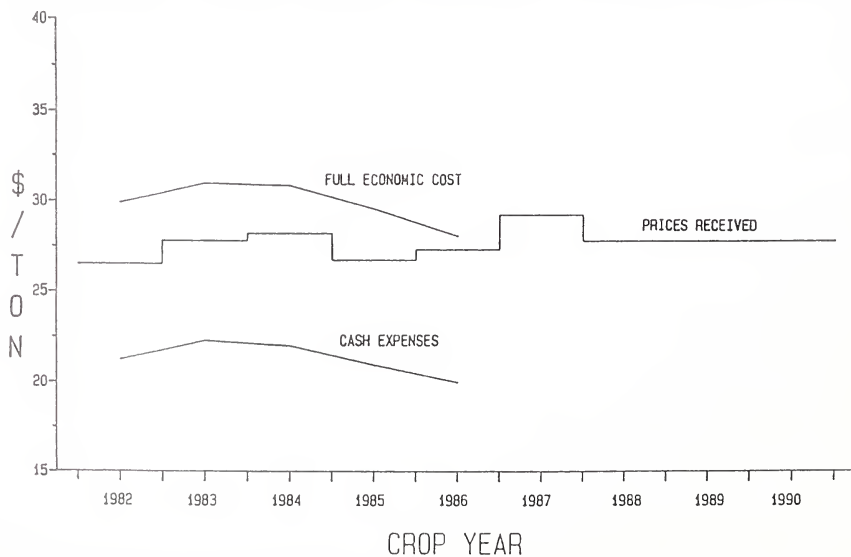
RICE: PRICE SUPPORT AND INCOME SUPPORT MEASURES VS. PRODUCTION COSTS



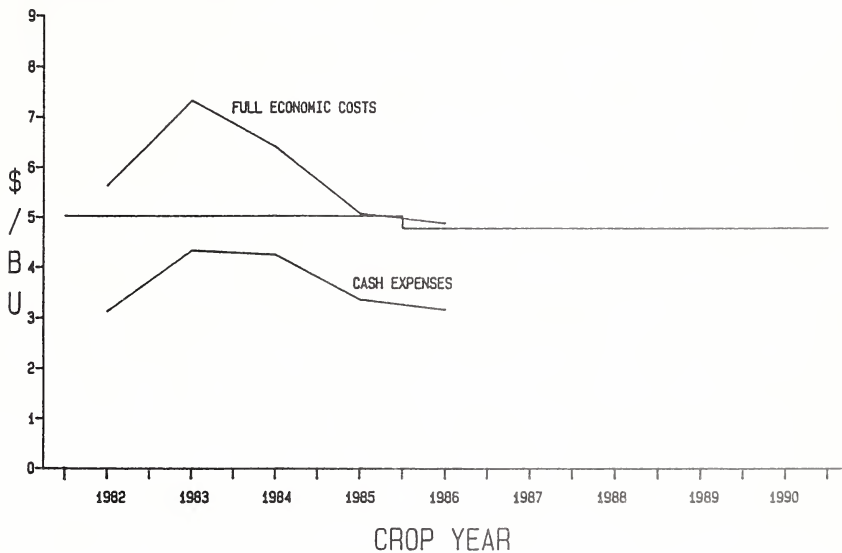
SUGAR BEETS: PRICE SUPPORT MEASURES VS. PRODUCTION COSTS



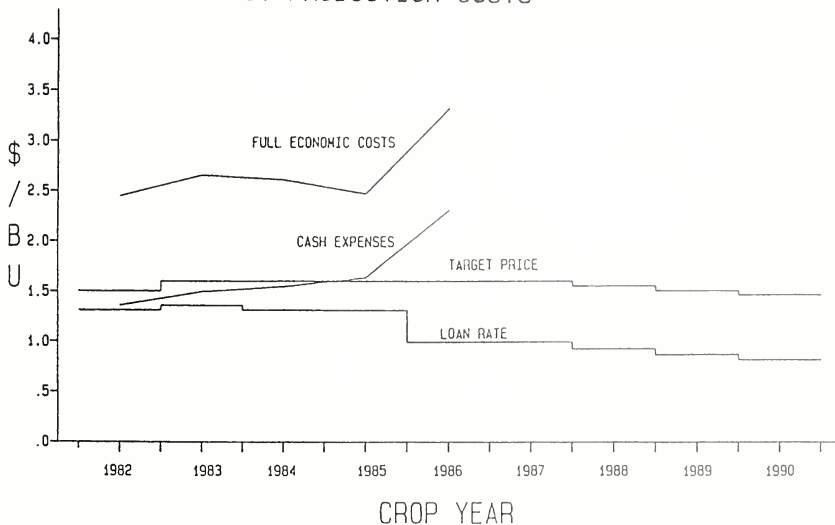
SUGAR CANE: PRICE SUPPORT MEASURES VS. PRODUCTION COSTS



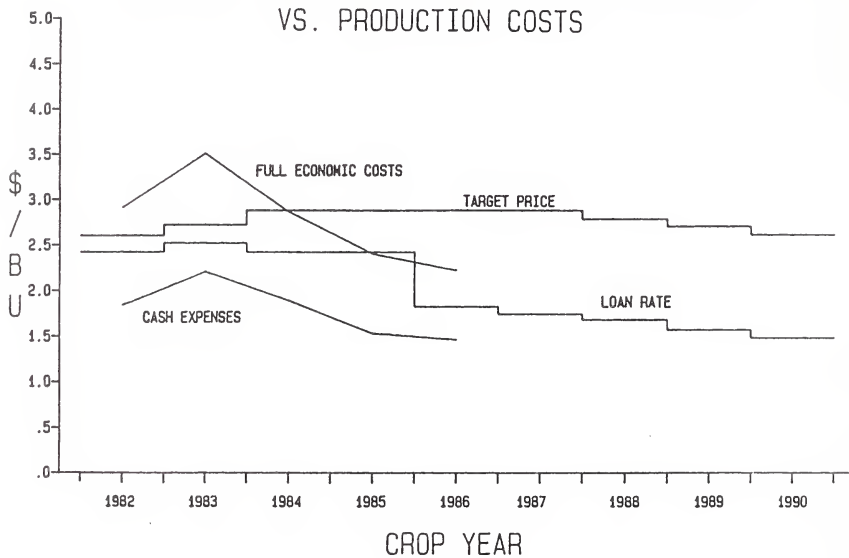
SOYBEANS: PRICE SUPPORT MEASURES VS. PRODUCTION COSTS



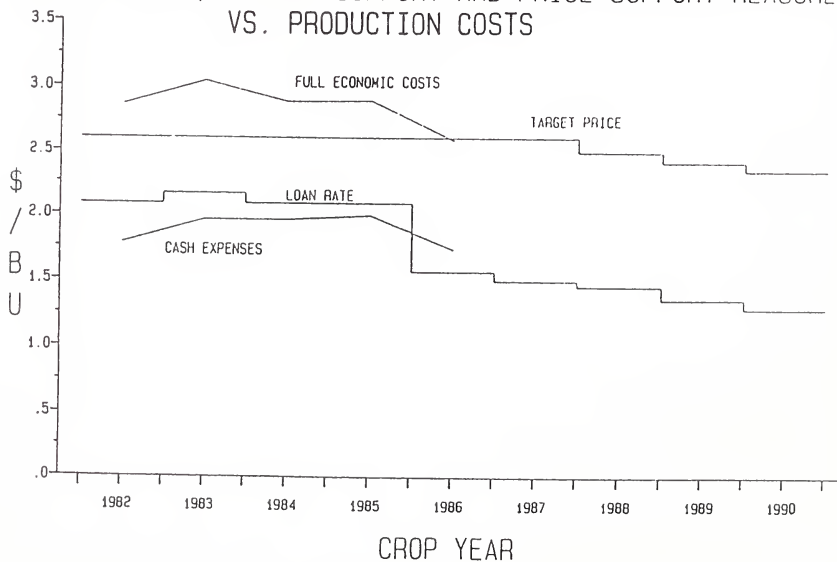
OATS: PRICE AND INCOME SUPPORT MEASURES VS. PRODUCTION COSTS



SORGHUM: PRICE AND INCOME SUPPORT MEASURES VS. PRODUCTION COSTS



BARLEY: COST, INCOME SUPPORT AND PRICE SUPPORT MEASURES VS. PRODUCTION COSTS



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25 OUTLOOK FOR TIMBER PRODUCTS //

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Few timber products are consumed by individuals in the form in which they are initially manufactured. Instead, most move to various major markets where they are remanufactured or made a part of a product that is ultimately used by individual consumers. Thus, although consumer demand is the underlying force, direct demand for timber products is largely determined by the levels of activity in their primary end-use markets.

In my talk today, I will review trends in the economy and in the major timber products markets through the third quarter of 1988 and present consensus estimates of their prospective growth in the last quarter of this year and in 1989. I will then comment on what these trends suggest as to the consumption and production of the various major timber products.

General Economic Trends

The gross national product, a measure of the Nation's total output of goods and services, and the most comprehensive indicator of total economic activity rose at an annual rate of 2.2 percent to \$4,007.3 billion (1982 dollars) in the third quarter of 1988. This was somewhat below the 3.0 percent annual rate in the second quarter, and sharply under the 4.5 rate in the third quarter of 1987. Many analysts feel that much of the decline was due to the effects of the prolonged drought and that the overall rate does not reflect growth in the nonfarm sectors of the economy. With the decline in July-September, growth through the first three quarters of the year averaged about 2.9 percent, almost a third below the 4.7 percent rate in the first 9 months of 1987.

Late in the third quarter, many indicators seemed to be pointing to lower rates of economic growth in the months ahead. For example, factory shipments and payrolls, new orders for durable and nondurable goods, and backlogs of unfilled orders declined in September, while inventories rose for the second month in a row. Reflecting these trends, industrial utilization rates showed a small decline. Retail sales and consumer credit were also slightly lower in September and, though personal income increased by a small amount, consumption expenditures were essentially flat.

Despite these trends, data from early in the fourth quarter showing small increases in industrial production and capacity utilization rates, coupled with a large rise in new factory jobs and a decline in the unemployment rate, indicate to many economists that a continuation of the downturn in the last quarter is not likely. They point out that these various indicators, in conjunction with a turnaround in October retail sales, suggest that the economy will continue to grow. They also estimate that the effects of the drought probably will be less of a drag on the economy in the fourth quarter than it was in the third.

With these various factors in mind, analysts forecast that the GNP will rise in the fourth quarter and probably at a little faster rate than in the third. As a consequence, average 1988 GNP should amount to about \$3,995 billion (1982 dollars), 3.8 percent above the average in 1987. Most also expect overall growth to slow somewhat next year. For 1989, a year-to-year growth rate of about 2.5 percent, in line with several forecasts, would mean a further rise to an average of \$4,095 billion.

Major Timber Product Market Trends

New housing units, which in the past have accounted for more than a third of United States annual consumption of softwood lumber and plywood and for substantial volumes of other softwood and hardwood products, were started at an annual rate of more than 1.5 million units through the first 4 months of 1988. Activity peaked in the early spring, however, and through the remainder of the first 3 quarters of the year starts moved lower. In October, total starts increased fairly sharply to an annual rate of 1.55 million, just under the previous high for the year reached in April. Despite this improvement, the number of units started through the first 10 months of the year was more than 10 percent below starts in January-October 1987. Much of the decline was due to continued weakness in the multifamily sector--down 17.2 percent--and largely the result of apartment overbuilding in some areas and the changes in the rental investment tax laws that took effect last year. The 7.7 percent falloff in single-family units is generally attributed to somewhat higher mortgage interest rates, particularly in the spring.

Although much of the October increase in starts was apparently attributable to a decline in mortgage interest rates, economists generally expect a return to higher rates late in the year and in 1989. These prospective higher rates likely mean weaker housing activity in the last months of 1988 and in 1989. Recent estimates of housing starts for 1988 fall between 1,400,000 and 1,500,000 units, with the current consensus at about 1,450,000--down nearly 10.5 percent from the volume started in 1987. Analysts' forecasts for 1989 have a somewhat wider range; however, most estimates available early in the last quarter show a continued decline to about the 1,400,000 level.

Single-family units are expected to account for 73 to 74 percent of total starts in 1988, up from 71 percent in 1987. A small decline in the relative proportion of single-family units is likely in 1989. Shipments of mobile homes, down about 7 percent from year-earlier levels through September, are likely to remain relatively weaker in the remainder of 1988 and in 1989 and total about 210,000 units for each year.

Repair and remodeling of residential structures, another major wood products market, apparently has slowed somewhat in 1988. Through September, Bureau of the Census construction surveys show that expenditures for improvements (additions, alterations, and major replacements) averaged about \$48.1 billion (seasonally adjusted annual rate, 1982 dollars), 1.2 percent below expenditures during the same period in 1987. Many industry observers feel that both repair and remodeling expenditures have been below year-earlier levels because of increases in interest rates during the first half. And most agree that expenditures will remain relatively slow if interest rates rise in late 1988 and in 1989.

Total nonresidential construction activity through the first 9 months of 1988 has been slightly weaker than during the same period in 1987. Expenditures through September averaged \$173.8 billion (seasonally adjusted annual rates, 1982 dollars), down 0.7 percent from January-September 1987. A number of things are apparently responsible for the lack of growth, including, for example, lack of investment incentives under the 1987 tax laws, and past overbuilding of office and hotel and motel space in some major markets. These factors persist in some areas, and in addition, any increase in interest rates is likely to have negative impacts in late 1988 and in 1989. At the present time, economists expect slightly lower levels of overall nonresidential construction activity in 1989.

The index of manufacturing production--an important indicator of the demand for pallet lumber, container board, and some grades of paper--rose to a seasonally adjusted value of 145.2 (1977=100) in October. This was less than one percent above the index for September and an increase of about 4.2 percent since January. The indexes of production for some of the major wood-using industries also have been slowly rising in 1988. The index of furniture and fixtures manufacture, for instance, rose about 3.5 percent between January and September.

Although total manufacturing output has expanded during the first 10 months of 1988, the rate of growth has been smaller than in January-October 1987. Growth in furniture and fixtures manufacture also has been somewhat slower than in the year-earlier period. Most economists currently feel that total manufacturing output and production in many industries will continue at a relatively slow pace in late in 1988 and in 1989 if economic growth weakens in the months ahead.

In summary, many of the important U.S. timber products markets have shown declines or somewhat lower rates of growth over the first three quarters of 1988 than in 1987. In addition, prospective trends in several of the important indicators point to continued declines or slower growth in the months ahead. Most important for many products is the likely continued downturn in housing construction.

International Markets

The United States is the world's leading importer of timber products--chiefly softwood lumber, wood pulp, and paper and board from Canada, and veneer and plywood from southeast Asia. The total value of these imports in 1987 was

\$15.3 billion, about 3.8 percent of the value of all U.S. imports. In terms of roundwood equivalents (i.e., the estimated amount of wood required to produce the individual products), more than a fifth of our apparent consumption of timber products in recent years has been imported.

The United States is also a major timber products exporter, the value of which is second only to Canadian shipments in world markets. In 1987, the value of our timber products exports was \$9.9 billion--about 4.1 percent of our export total. Although we ship a wide variety of timber products to many different countries, our principal export markets are Japan for softwood logs and lumber, pulp chips, wood pulp, and paper and board products, and western Europe for lumber, plywood, wood pulp, and paper and board. In recent years, China has also become an important market for softwood logs.

Demand in most of our major offshore markets has been strong in 1988. According to data presented at the October meeting of the Timber Committee of the Economic Commission for Europe, economic growth in most of our major European markets has been much stronger in 1988 than in 1987, with lower than forecast interest rates and relatively good construction and manufacturing marketing in most countries. As a result, some expected record levels of softwood lumber and particleboard consumption for the year. Exports of logs to Japan and China and of lumber to Japan have also been ahead of shipments last year.

Looking forward to 1989, the likelihood is for some slowing in the exports of most products. Our major western European trading partners expect an easing back in their purchases as a result of probable rising interest rates and slightly slower overall growth. Industry analysts also expect that shipments to our major Pacific Rim markets also will be smaller than they were this year. Imports, in general, probably will be constrained by lower demand as outlined earlier.

Timber Products Production, Trade, and Consumption

Softwood Lumber

According to data from the National Forest Products Association, softwood lumber consumption in the first 8 months of 1988 was about 6.7 percent below that in the same period in 1987. Current expectations about housing and other markets indicate the likelihood of some additional slowing in the final months of the year. Thus consumption for all of 1988 (based on data from the U.S. Bureau of the Census) is estimated at 45.9 billion board feet, 7.6 percent below the record 49.7 billion board feet consumed in 1987 (table 1).

Imports, nearly all from Canada, have slowed somewhat over the first 9 months of 1988. Through September, total softwood lumber imports were about 5.3 percent below the similar year-earlier period. Imports during the last quarter of 1988 are likely to continue at slightly lower levels given the prospective softening U.S. demand situation. As a result, total imports for 1988 are expected to drop to 13.8 billion board feet, down about 6.3 percent from the volume imported in 1987.

Table 1.--U.S. Wood products production, consumption, and trade
(1985-87 actual, 1988-89 projections)

Product	Year	Domestic production	Imports	Exports	Apparent consumption
Softwood lumber (billion bd. ft.)	1985	30.5	14.6	1.5	43.6
	1986	34.8	14.3	1.9	47.2
	1987	37.4	14.7	2.5	49.7
	1988	35.2	13.8	3.1	45.9
	1989	33.3	13.0	2.7	43.6
Hardwood lumber (billion bd. ft.)	1985	6.0	.4	.4	5.9
	1986	7.2	.3	.5	7.0
	1987	7.5	.5	.8	7.2
	1988	7.8	.4	1.3	6.9
	1989	7.5	.3	1.1	6.7
Softwood plywood (billion sq. ft., 3/8-inch basis)	1985	19.3	.1	.3	19.1
	1986	20.4	.1	.6	19.9
	1987	21.1	.1	.8	20.4
	1988	20.6	.1	1.0	19.7
	1989	20.1	.1	.9	19.3
Hardwood plywood (billion sq. ft., 3/8-inch basis)	1985	.8	1.7	1/	2.5
	1986	.9	1.9	.1	2.7
	1987	.9	1.9	.1	2.8
	1988	.9	1.6	.1	2.4
	1989	.9	1.5	.1	2.3
Particleboard 2/ (billion sq. ft., 3/4-inch basis)	1985	4.1	.6	.1	4.6
	1986	4.5	.6	.1	4.9
	1987	4.7	.6	.2	5.1
	1988	4.7	.7	.2	5.2
	1989	4.5	.6	.2	5.0
Hardboard 3/ (million tons)	1985	2.0	.3	.1	2.2
	1986	1.8	.3	.1	2.1
	1987	1.7	.3	.1	1.9
	1988	1.6	.2	.1	1.7
	1989	1.6	.2	.1	1.7
Insulation board (million tons)	1985	1.0	.1	4/	1.1
	1986	1.0	.1	3/	1.0
	1987	1.0	.1	.1	1.0
	1988	1.0	.1	.1	1.0
	1989	.9	.1	.1	.9
Pulpwood (million cords)	1985	87.3	.7	1.9	86.1
	1986	93.4	.6	1.9	92.1
	1987	96.8	.4	2.0	95.2
	1988	98.6	.8	2.7	96.7
	1989	99.4	.6	2.5	97.5

1/ Less than 50 million square feet.

2/ Includes medium density fiberboard. Imports include unknown quantities of waferboard.

3/ Shipments.

4/ Less than 50,000 tons.

Note: The projections shown for 1988 and 1989 are based on the trends in the major markets discussed in this paper and should not be viewed as forecasts of actual volumes. Data shown are subject to rounding.

Sources: U. S. Department of Agriculture, Forest Service estimates based on data from the U.S. Department of Commerce, American Hardboard Association, American Paper Institute, American Plywood Association, American Pulpwood Association, National Forest Products Association, National Particleboard Association, and Western Wood Products Association.

Exports through the first 9 months of 1988 were up sharply from January-September 1987. Many observers feel that this strong trend will moderate somewhat late in the year. As a consequence, exports for the year are likely to total about 3.1 billion board feet. This would be about 26 percent more than in 1987 and a record level.

Through August, U.S. production of softwood lumber was nearly 5.4 percent below the first 8 months in 1987 according to information from the Western Wood Products Association. With somewhat slower markets expected in the last months of the year, production for all of 1988 should amount to about 35.2 billion board feet, almost 6 percent below production in 1987. Present expectations about housing and the other important markets discussed earlier indicate that further declines in production, imports, exports, and consumption are likely in 1989.

After rising through the first half of the year, the price of domestically produced softwood lumber has been declining in recent months. The October producer price index was 118.4 (1982=100), down almost 6 percent from the index for July, but about the same as in October 1987 (table 2). With the prospective slowdown in consumption in late 1988 and in 1989 discussed earlier, prices likely will not rise markedly in the near future.

Table 2.--U.S. producer price indexes for selected timber products
(1982=100)

Product	Annual			October	
	1985	1986	1987	1987	1988 ¹
Softwood lumber	107.4	108.4	116.1	118.2	118.4
Hardwood lumber	117.1	118.2	126.8	129.7	127.8
Softwood plywood	107.4	109.4	109.8	112.0	108.9
Hardwood plywood ²	89.9	91.0	92.9	93.1	94.6
Particleboard ³	110.3	112.5	121.1	127.9	121.4
Hardboard	103.0	103.7	101.9	101.5	105.6

1 Preliminary.

2 Hardwood plywood and related products.

3 Platen-type (mat-formed), December 1982=100.

Source: U.S. Department of Labor, Bureau of Labor Statistics.

Hardwood Lumber

Data published by the National Forest Products Association show hardwood lumber consumption through the first 8 months of 1988 down 4.3 percent from the similar period in 1987. If manufacturing markets continue at the current slow pace in the last months of the year, consumption, based on Bureau of the Census data, is likely to drop to 6.9 billion board feet, about 4.5 percent below the 1987 total.

Hardwood lumber imports through September were almost 19 percent below those in the first 9 months of 1987 with some additional slowing expected in the last quarter. The total for the year is thus estimated at 0.4 billion board feet. Data through September showed that exports were up 77 percent from the first 9 months of 1987. The total for the year is expected to be 1.3 billion board feet, about 70 percent above the volume exported in 1987.

Hardwood lumber production in 1988, based on data from the Bureau of the Census and the above estimates of consumption and trade, is projected at 7.8 billion board feet, up 4 percent from output in 1987. Anticipated slower growth in the important hardwood markets suggests a decline in production and consumption is likely in 1989. Imports and exports also are expected to show small drops.

Hardwood lumber prices have also declined somewhat since earlier in the year. The October producer price index--127.8 (1982=100)--was 4.5 percent below the high recorded in May and less than one percent above the average for all of 1987. Prices for hardwood lumber are generally less volatile than those for softwood lumber, but in most cases tend to follow the trends.

Softwood Plywood

As noted earlier, new housing construction, traditionally the most important softwood plywood market, has remained below year-earlier levels through the first 10 months of 1988, and other major markets have shown only relatively slow growth. As a result, softwood plywood consumption has been somewhat weaker than in 1987. Total consumption in 1988 is expected to drop to about 19.7 billion square feet (3/8-inch basis), about 3.4 percent less than was used in 1987.

Data for the first 9 months of 1988 show softwood plywood exports nearly 30 percent above shipments during the similar period in 1987, with significantly larger shipments to nearly all of our major offshore markets. This upward trend is likely to slow somewhat late in the year and the total for 1988 is expected to be about 1 billion square feet. Imports are expected to amount to about 0.1 billion square feet.

With these levels of consumption and trade, softwood plywood production for 1988 is projected to decline to 20.6 billion square feet (3/8-inch basis), about 2.4 percent below output in 1987.

For 1989, with the prospective drop in new housing construction, and the slower growth in other markets, total consumption is expected to decline about 2 percent to 19.3 billion square feet. Imports and exports also are likely to be somewhat lower than in 1988; and as a consequence, production should total 20.1 billion square feet, 2.4 percent below output for this year.

Softwood plywood prices, as indicated by the producer price index, have shown no sustained trend through the first 10 months of the year. The October index--108.9 (1982=100)--indicated prices about 2 percent below those in January, but nearly 5 percent above the yearly low reached in May. If demand declines in 1989 as outlined above, a sustained rise in prices is not likely.

Hardwood Plywood

Consumption of hardwood plywood in 1988 is expected to be near 2.4 billion square feet (3/8-inch basis), about 14 percent below total use in 1987. Trade data through September indicate that imports are likely to drop about 16 percent to 1.6 billion square feet. Exports are expected to remain relatively small at about 0.1 billion. With these trends in consumption and trade, production for 1988 will total 0.9 billion square feet, about the same volume as in 1987.

Much of the hardwood plywood consumed each year is used in residential construction as well as in the manufacturing sector. As a consequence, a decline in consumption, imports, and a small drop in production is likely in 1989. Exports are expected to remain close to 0.1 billion square feet.

Hardwood plywood prices, as indicated by the producer price index, have changed very little over the past few years. The index for October--94.6 (1982=100)--indicates prices only 5 percent above the average for 1985 and, of course, 5.4 percent below the average for 1982.

Particleboard and Medium Density Fiberboard

Activity in the major manufacturing markets and shipments data from the National Particleboard Association suggest that combined consumption of particleboard and medium density fiberboard in 1988 will be close to 5.2 billion square feet, 3/4-inch basis, about 2 percent above that used in 1987. Roughly a fifth of total combined consumption is expected to be medium density fiberboard.

Data from the Bureau of the Census for the first 9 months of 1988 imply that imports will rise to about 0.7 billion square feet and exports will remain at about 0.2 billion square feet. With these estimates, production would amount to 4.7 billion square feet, about the same as production in 1987.

Trends in the major markets, discussed earlier, suggest that a decline in production, consumption, imports, and exports is likely in 1989.

Hardboard and Insulation Board

Based on industry shipments through the first 7 months of the year, hardboard consumption in 1988 is estimated at about 1.7 million short tons, 10 percent below estimated consumption in 1987. Imports are expected to total 0.2 million short tons, with exports at about 0.1 million short tons. Production, with these estimates of consumption and trade, would amount to 1.6 million short tons, about 6 percent below production in 1987.

Markets during the first 3 quarters of 1988 indicate that insulation board production for the year will be near 1.0 million short tons--about the same as in 1987. Imports and exports are expected to be close to 0.1 million short tons. Consequently, production is estimated at 1.0 million short tons, also about the same as in 1987.

With the prospective trends in housing and the major manufacturing markets, consumption and production of hardboard and insulation board are likely to show small declines in 1989. Imports and exports for both products will probably remain about the same as in 1988.

Pulpwood

Over the first 3 quarters of 1988, paper and paperboard production and consumption, though following a relatively flat trend, has been at record and near-record levels, according to data from the American Paper Institute. Through September, the annual rate of total output was up 3.7 percent from the first 10 months of 1987. As a result of these trends pulpwood consumption was also at record levels. Paper and paperboard consumption is sensitive to trends in total economic activity. Thus, if overall growth remains relatively slow late in the year, large increases in demand are not likely. On the basis of these trends, pulpwood consumption (roundwood and chips) in 1988 is expected to total 96.7 million cords up about 1.6 percent from the previous high recorded in 1987.

Imports of pulpwood, mostly pulpwood chips from Canada, have increased sharply from year-earlier levels through the first 9 months of 1988, according to Bureau of the Census data. As a result, imports for the year are expected to total 0.8 million cords. Exports are estimated at 2.7 million cords, about 34 percent above exports in 1987. Most of the increase in exports will be in the form of pulpwood chips.

Pulpwood production in 1988 is expected to rise to about 98.6 million cords, 2 percent more than in 1987, and also a new record. The prospective increase in overall economic activity suggests that the upward trend will continue in 1989, though at a somewhat slower pace than in the past few years.

Softwood Log Trade

Softwood log exports during the first 9 months of 1988 totaled 3.6 billion board feet, up about 20 percent from the 3.0 billion board feet shipped during the same period in 1987. Exports were up to nearly all destinations, however,

shipments to China were more than double the year-earlier volume. As the result of some probable slowing late in the year, exports for all of 1988 have been estimated at 4.4 billion board feet, 11 percent above shipments in 1987. Industry sources indicate that the outlook for 1989 is for a decline to about 4.0 billion board feet.

Softwood log imports were up sharply through September. Although likely to slow somewhat in the last quarter, imports for the year are expected to reach 0.1 billion board feet, about a third more than in 1987.

Hardwood Log Trade

Hardwood log exports for 1988 are estimated at 0.2 billion board feet. Although the volume is relatively small, most of the logs exported in 1988 and in recent years have been high quality oak, walnut, and other preferred species that are in short supply in the United States. Thus, these exports have been an important contributing factor to the large increases in stumpage prices for some species.

Hardwood log imports in 1988 are expected to be close to 10 million board feet, a little below the volume imported in 1987.

Industrial Roundwood Summary

Given the trends in consumption, trade and production in 1988, total consumption of all industrial roundwood products (i.e., all roundwood products except fuelwood) is expected to be about 3.8 percent below the record volume consumed in 1987. Production and imports will also be below year-earlier levels. Exports, however, will show a moderately large rise. Consumption, imports, exports, and production will all decline in 1989 if the major markets follow the trends discussed earlier.

Fuelwood

Studies have shown that in the short run, fuelwood consumption largely is determined by such factors as the prices of alternate fuels and weather conditions during the heating season. Current estimates indicate the rapid growth in the consumption of fuelwood seen in the late 1970's and 1980's has slowed as the prices of fossil fuels have peaked and then declined in recent years. Based on available data, fuelwood consumption in 1988 is estimated at about 48.8 million cords, just slightly less than estimated consumption in 1987. Some additional decline is likely in 1989 if the prices of other fuels do not rise.

Much of the wood used for domestic heating and cooking in the United States is cut by the consumers themselves from trees in urban areas, fence rows, dead forest trees, and other sources not normally drawn upon for industrial timber products. Most of that used by forest industries comes from utilization of logging residues and mill byproducts.



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ISSUES IN TIMBER PRODUCTS TRADE

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The value of U.S. solid wood exports reached a record high in 1987 and has already surpassed this record level in 1988. The U.S. forest products industry is competitive internationally and therefore has much to gain from a free and open world marketplace for wood products. Conversely, the industry also has much to lose from tariff and nontariff trade barriers that restrict their opportunities to market their products overseas.

The rules governing international trade have been described as "a series of loopholes tied together with a string of exceptions." A government trade official with a fertile imagination has abundant opportunities to raise havoc in the international trade arena. The objective of this paper is to provide an overview of the current and future issues of wood products trade, especially tariff and nontariff barriers to trade. A number of issues will not be discussed including the export practices of countries such as Indonesia, log export restrictions of other countries, and exploitation of tropical forests. Generally, issues in forest products trade exist or are created to protect something such as a domestic industry or the health of a country's forest resources. Generally these trade restrictions are accepted under international trading rules. Tariff issues will be explored first.

Tariffs are recognized under international trading rules. They are justified for balance of payment reasons and the protection of an infant industry. In the timber product industry, one generally finds high tariffs on processed products and little or no tariffs on logs. Since wood products, like other commodities, are traded with very tight margins, a 5 percent tariff can be an insurmountable trade obstacle. Fortunately, tariffs are visible and negotiable and much progress has been made at reducing tariffs.

Nontariff trade issues are both visible and, in many instances, invisible. Further, the invisible nontariff trade barriers are at times difficult to discern and are not addressed or affected by international trading rules. In contrast to the visible tariffs, little progress has been achieved in this area.

Nontariff barriers come in a variety of forms. For instance, there are numerous plant health regulations and although they are trade restrictive,

they are fully justifiable. However, there are other plant health regulations restricting trade in forest products that we believe are not justified. The Scandinavian ban on coniferous woods from the U.S. and Canada is one example. Import quotas are a classical example of a nontariff trade barrier; the European Community (EC) maintains a nil duty quota on softwood plywood imports.

Another example is a business practice that has developed over the years that discriminates against imports such as a much more circuitous distribution chain for imported products than for domestically produced products. The extra steps in the distribution chain result in more profit margins added to the cost of the product. The process itself, therefore, can make the imported product less competitive. Nontariff trade barriers are a primary target for the current round of international trade negotiations, called the Uruguay Round. The particular issues of the tariff and nontariff barriers can be broken down into geographical regions.

NORTH AMERICA

The US/Canadian Free Trade Area (FTA) appears, thanks to the results of the November 1988 Canadian elections, on course to become effective January 1, 1989. An issue yet to be resolved, however, is the harmonization of plywood product standards between the two countries. Until this issue is resolved, tariffs will remain on a number of wood products. Work in this area is progressing, but at a slow rate.

As the final step in the mid term review process, the president handed down a decision on the Canadian shakes and shingles issue on December 7, 1988. A compromise between keeping the duty on the low priced shakes and shingles entering the U.S. as provided for in the 1986 decision and eliminating the duty altogether was reached. The duty (originally set at 35 percent for 2 1/2 years, 20 percent for the following 2 years and 8 percent for 6 months) will remain at 20 percent for the next year, drop to 10 percent for the following year and 5 percent for the final 6 months. The purpose of this duty was to give the U.S. industry enough time to make improvements that would enable the U.S. industry to be competitive with the Canadian shakes and shingles industry.

The Defazio Bill, introduced but not reported out of committee in the last Congress, would have granted authority to the states to control the export of logs from state owned and administered lands. This bill would return the authority to the states that was stripped from them by an 1984 Supreme Court ruling. With support for this bill in both the House and the Senate, there probably will be efforts to reintroduce the bill next year.

There are a number of important trade issues directly affecting the U.S. wood products industry involving international organizations, including the General Agreement on Tariffs and Trade (GATT). For example, the U.S. has strongly urged that wood products be negotiated in the Agricultural Group. Unfortunately, this position has not been accepted by other countries. The U.S. agricultural proposal is very comprehensive, calling for the total liberalization of trade in these products among developed countries. Acceptance of the U.S. proposal and vigorous perusal would greatly benefit the U.S. wood products industry.

The Organization for Economic Cooperation and Development (OECD), composed of a group of developed countries, has set forth, among other things, guidelines on the terms of official government export credits. The issue of whether or not wood products falls under these guidelines has directly impacted the extent to which the U.S. industry has used the export credit guarantee programs of the U.S. Department of Agriculture. Currently, the only credit program available is the Export Credit Guarantee Program 102 (GSM-102). Access to the Export Credit Guarantee Program 103 (GSM-103) and the Public Law 480 (P.L. 480) credit programs is being pursued.

EUROPE

As an important market for a wide variety of U.S. wood product exports, there are a number of important current and future trade issues in the EC. For example, the EC maintains a nil duty softwood plywood quota that restricts the overall size of the market and makes orderly marketing of our products all but impossible. This issue is a priority item for the U.S. industry in the Uruguay Round.

A very significant issue that looms ominously on the horizon is the plan for the EC to standardize all country product standards by 1992. As the U.S. plywood industry knows, a very small change in a standard can effectively eliminate a particular product from the market. This issue will receive increasing attention.

There are also a number of issues in non-EC countries. Sweden, Finland and Norway have maintained bans upon the import of coniferous wood from the U.S. and Canada for the past four years. These bans were instituted as a result of the discovery of the pinewood nematode in a wood chip shipment late in 1984. This issue remains unresolved and could have ramifications for our trade with other nations.

ASIA

Tariffs remain a key issue in Japan. However, there are a number of nontariff issues including standards, product classification and even nail sizes. Japan is a nation about which we have some knowledge of the various trade issues that exist. We have been in intensive and extensive negotiations with Japan about the liberalization of their wood products market since 1985. The issues are many, including a tariff schedule which discriminates against processed products in favor of logs. The standards issues take many forms. One of particular concern is the very restrictive nature of standards for new products. Often a standard for a product new to the Japanese market is announced but is permitted for only one particular application. This offers the domestic industry in Japan the opportunity to develop and market a similar product -- before the U.S. supplier can gain the additional necessary standard approvals to develop and widely market their product.

Two countries with large trade surpluses with the U.S., Korea and Taiwan, maintain high tariffs on certain products to protect domestic industries. These two "tigers" of the Pacific have a large potential for trade in wood products if these restrictions can be eliminated.

LATIN AMERICA

An enormous variety of both tariff and nontariff barriers exist in Latin America. Combinations of tariffs, taxes and license fees can double or triple the landed cost of a product. Outright bans on imports are easily maintained by not making foreign exchange available to the importer. Trading blocs such as the Andean Group, which includes an important competitor, Chile, provide significant tariff advantages to members. Although there is great potential in this area, the obstacles will be very difficult to overcome.

It would be easy to be discouraged by the intricacies and large number of trade issues that confront the U.S. wood products industry and the agonizingly slow pace of the process to resolve these problems. Successes, however, also exist. For example, reductions of tariffs have been made in Japan and Korea. The American Plywood Association and the Southern Forest Products Association have been successful in gaining standard recognition for U.S. forest products in the EC. The number of American species recognized in the laminated lumber standard in Japan has increased. The shakes and shingles and the Canadian lumber import issues have certainly brought relief to segments of the U.S. wood products industry. A recent agreement in Israel will allow imports of U.S. plywood for the first time since the signing of the U.S./Israel Free Trade Agreement.

The U.S. wood products industry is competitive in the international arena and has demonstrated its willingness and ability to take advantage of the opportunities generated by the resolution of trade issues. They deserve and have earned our continued efforts in this area.

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NEW DYNAMICS OF PRODUCE MARKETING

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Good morning. What a treat this is for me to be here. Not just because this is a prestigious conference, but because you are one of the most important audiences we must reach. We sit here in Alexandria and Washington creating all sorts of programs, which simply would not fly at all if it weren't for you taking them to the people we are targeting. You are our ultimate network.

My challenge is to give you an overview of produce marketing. It's an exciting topic. Particularly in light of the fact that a decade ago produce marketing was almost an oxymoron. Produce was simply there because it existed. Today it has achieved the ultimate status of being a trend in itself. And if we play our cards right, it won't be just a trend but will be a lifestyle.

This morning I want to talk to you about what is driving the marketing of fresh fruits and vegetables. Some of the areas I will cover are also being reviewed right now at another session on nutrition, but as you will see, it is a subject that warrants extensive discussion, because it is a real selling tool.

Before we look at trends, we'll look briefly at produce and the retail marketplace. Then we will look at the trends, and issues facing us, and finally, take a look at the future and what other prognosticators say is going to happen. (I supplement crystal ball gazing by others with my own guesswork.)

Supermarkets are a 228 billion dollar industry. Today there are more than 30,000 of them. Growth is fairly flat with store openings and closings almost cancelling each other out. (You know, it's like all other news, you read about the openings, but not the closings).

Let's look at store size -- an average of over 20,000 square feet. However, last year the new stores averaged 47,000 square feet with 33,000 square feet of selling space. That is really significant, as you will see.

Let's look now at the produce. It is a 37 billion dollar retail industry and of that 69 percent is sold in grocery stores. Fresh produce accounts for at least 8 percent of store sales and a healthy 25 percent of store profits. The figures you see are conservative. Some statistics show them a full point higher. However you look at it, produce has clout. Now let's take a look at the things that are driving the marketing efforts for produce. First of all, we have the Big C. That is competition.

We have hypermarkets. Here are three of the biggest and their average size. Carrefour, from France, has stores outside of Philadelphia and was planning another store on Long Island. I read just last week that this venture has been postponed indefinitely ... which might be saying something about the role of the hypermarket at least in the East. Sam Walton's Hypermarkets USA is in the Midwest and Auchan, another European, has arrived on the scene in Houston (actually it opened on Oct. 14). They are worth our attention because almost half the space is given to grocery and yes, they are doing a big business in produce. I know for a fact that when Carrefour opened it was buying high quality produce and discounting it heavily to lure customers into the store. At Auchan produce commands 650 linear feet.

Wholesale clubs are another bit of retail competition. There are almost 300 of them now and although they have an average annual volume of between 30 and 40 million dollars, they only account for 2 percent of the food dollars spent. I bring them to your attention not because they compete directly with the average supermarket, but because they offer consumers a different way to shop. The price conscious shopper very often looks there first.

But by far the most important ingredient in the marketing plan is the consumer. They drive the marketers. Here's what is driving them.

Here is proof of the importance of produce in the retail marketing picture. Look at the factors influencing consumers' choice of supermarket.

Quality produce heads the list for the second year in a row. This is followed closely by good variety, wide selection, quality meat, low prices, courteous friendly employees, convenient location and readable shelf tags. The latter has gotten more and more important over the past few years probably because of the customer's desire for information as well as price consciousness. Also, the fact that we are becoming an older population generally and perhaps our eyesight isn't as good as it used to be. This finding also may have some impact on the labelling issues under consideration.

Now let's see what factors are important in customers' choice of food. These are very important to produce.

Taste, Product Safety, Nutrition, Price, Storability and Ease of Preparation (the old convenience factor again). As I said, all of these are critical to produce marketing efforts.

Taste, or better flavor, has been the rallying cry from consumers, particularly concerning tomatoes, strawberries, peaches and nectarines ... all the wonderful summer fruits and veggies. This consumer quest was covered at length by U.S. News and World Report which related all the work that is being done to produce better flavored produce and more affordable specialties, for example. These include miniature super-sweet melons, cauliflower and broccoli with a naturally cheesy flavor, and inexpensive shitake mushrooms.

From that seemingly overwhelming desire for better flavored produce has also come a proliferation (perhaps too strong a word) of "tree-ripened" programs which have been embraced by some retailers. Here you have a premium product sold at a premium price and a product which sells well. Naturally, shrink is the number one problem but sales very obviously offset this cost.

I want to defer produce safety until later so let's look next at nutrition, the third item on the list. What concerns do consumers have today?

Fat, Salt, Cholesterol, Vitamins, Minerals and Sugar. Produce scores again. Fat, cholesterol free, low or no salt and lots of nutrients. Produce is getting a lot of support from the health and nutrition arena. The dietary guidelines which were published in 1979, position fresh produce high in the diet. The Surgeon General's report of last summer certainly means a great deal to the produce industry. It provides strong support for selected health claims in advertising and labeling ... it's a right-kind-of-food-for-you. It has brought increased attention to produce and its role in disease prevention. It boosts education efforts of schools and will even impact the foodservice programs.

It is being developed into state programs like the Nutrition and Cancer Prevention Program now underway in California, sponsored by the California Department of Health Services and National Cancer Institute. In the program, Californians are being urged to double their intake of fresh fruits and vegetables by eating at least five servings of produce a day. We anticipate that this program will roll right across the country. It has a memorable slogan (Five a Day) and can be easily implemented in the marketplace as well as at the grower/shipper level.

The produce industry also has become a partner for Better Health, a coalition of food industry groups that will specifically promote a low-fat message to the public. This coalition is part of the Kaiser Family Foundation's low fat program, called Project Lean and is working with the National Advertising Council to implement a nationwide campaign to convince Americans to lower the fat in their diets. That's a marketing bandwagon for produce, if ever we saw one.

At United, we have had the opportunity to document the power of the nutrition message through a research project with the University of Minnesota Department of Public Health. The university completed a study utilizing our Fresh Tip Tapes, a point-of-purchase video program for retailers. In the study, Fresh Tip Tapes, which are what we call proven performers in produce departments, were tested against very similar tapes with a health message emphasis -- in this case, a heart health message. The result marked a significant turnaround in consumer appeal. Health messages sold just as well as the enticing recipe oriented ones. Five years ago, nutrition and health messages were a turn-off.

Here's another consumer trait that bodes well for fresh produce. How are customers preparing food differently than they did five years ago?

Less salt ... produce is salt free.

Less frying ... growing awareness of other cooking methods such as stir-fry and microwaving.

More broiling ... more consumer education is needed here. How many know that fresh corn and tomatoes can be cooked on the barbecue?

Preparing more fresh foods ... important because fresh fruit consumption is up, but fresh vegetables are still lagging.

All of these consumer characteristics are producing a different kind of fresh presentation. Microwaving and convenience are the easiest to tackle and we are seeing precuts and microwavable packages more and more. Even fresh produce marketing must cater to the "Shop and Pop" consumer of today.

Now let's look at the health concerns that are expressed by consumers today.

- Residues
- Antibiotics
- Fat
- Cholesterol
- Salt
- *Irradiated foods
- Nitrates
- *Additives
- Sugar and
- *Artificial coloring.

Those with asterisks have DECREASED in level of importance since the last study in 1987. Interesting to see irradiated foods in that category.

Who do consumers rely on to make sure their food products are safe?

Federal government, consumer organizations, manufacturers or producers, state governments and retailers. The top of the list is personal responsibility. But where do consumers get the information on which they must make these judgements? Much of it from the media.

Since we at United represent growers as well as retailers, we felt it our responsibility to implement a pro-active program to reach consumers through a third party --- the media and other food communicators. So we developed a comprehensive education program to deal with produce safety issues. We call it United Produce Quality Program or ProQuality for short. We thrashed out the name for days after we had all the elements of the program in place. Anything with safety in it we felt was an implied negative. Quality is the critical issue here. Consumers want to be reassured. We think ProQuality is both descriptive and positive.

The program, in a nutshell, was developed as an educational one for the media. We don't have 100th of the funds it would take to mount a public awareness campaign of our own. We must use the media to convey our messages for us so it has to be a knowledgeable media.

Advising us along the way is a nutritionist, Dr. Sanford Miller, certainly well known to most of you from his days as director of the center for Food Safety and Applied Nutrition here at USDA. Also as an advisor, is Dr. Donald A. Henderson, dean of the School of Hygiene and Public Health at Johns Hopkins. Joining these two gentlemen from academia is our own staff toxicologist and resident food safety expert, Dr. Jill Snowden. Just this month, Jill, Sandy Miller and John McClung, who heads United's public affairs, made a swing through the south visiting the editorial boards of the newspapers in Atlanta, Tampa, Miami, Ft. Myers.

They were well received and had an excellent opportunity to set the facts before the opinion makers so that they could make educated analysis of activities that often turn into news stories ... stories that more often than not verge on sensationalism rather than reason. Chicago comes next, along with St. Louis and Detroit. This map shows the other markets that are scheduled for visits within the next six months.

As part of the education process came a background paper on produce and pesticides, developed primarily for the media to have as a reference. Copies

of this paper are available to you through United. It is not meant as a consumer handout. It is a good backgrounder for you as you work in the field because it reflects and answers the questions most often posed by consumers.

These activities are being rolled into a bigger effort that has come from our industry, and one that will have a direct impact on the marketing of fresh produce at retail. I'll preview that for you in a minute.

It all came about at a meeting of industry leaders in Dallas in August, a meeting called by United to discuss the possibility of a Research and Promotion Act for the produce industry, an act like that of beef and dairy. But because of the immediacy of the pesticide problem, although it is not a national malaise, believe me, a coalition was formed to address it. It was headed by Roger Stroh of United and Bob Carey of PMA. The problem was quickly identified by the industry representatives as one of consumer perception. The scientific aspects of it are secondary.

Just two weeks ago, at the direction of the coalition, a communications program was presented to a larger body of industry representatives. The program provides a strong support for retailers while incorporating existing efforts of other organizations. Funding is being secured for the effort. Our industry literally put its money where its words were.

I'd like to review the program briefly. It is a landmark for our industry as it marks the first time the industry has come together in response to a common need. First of all, it's been developed out of a classic good news/bad news scenario. At no time in recent history has there been so much good news about fresh produce. We hear it from the health professionals. Eat more fresh fruits and vegetables.

Meanwhile a growing group of industry critics are saying something very different. That produce is not safe and that pesticide residues on produce pose serious health hazards. What's true? But we must act or consumers will never find out.

The situation is serious. In the media, a story on health hazards of fresh produce is much more newsworthy than one on the health benefits.

We're also seeing increased scrutiny of produce inspection practices by the congress, consumer activists and by entrepreneurs who see private inspection as a commercial opportunity.

This caused major regulatory agencies responsible for produce safety to reassess their roles. The EPA and the FDA both proposed changes in pesticide approval and monitoring and not all of these programs are in the best interests of the industry.

With all these organizations and others fueling the fires, retailers have been feeling increased pressure to respond to consumer concerns. In some cases, they are turning to private testing and aggressively promoting the safety of their privately-tested produce. Here you see an illustration of this on the left, and a leading retail chain's response and one we endorse wholeheartedly.

Our challenge is clear. We must reinforce public confidence in produce safety.

In addition to this communications program, the industry is working on other fronts. We are cooperating with the FDA and EPA in their assessment of produce

inspection system. We are working on a policy statement spelling out our position on produce safety and we are considering model programs which the industry can mount to improve the produce inspection system.

We have four primary objectives:

1. To increase awareness of what our industry is doing to assure produce safety.
2. To increase awareness of the health benefits of produce.
3. To dispel the myths and misperceptions that consumers are hearing about produce safety, and
4. To increase awareness of government inspection and other measures now in place to assure produce safety.

That last objective is really important. Although the systems may be changing, the fact is there are many things already in place to help protect consumers from harmful pesticides. You know that. But consumers need to know the facts. They want to know the truth.

Here are the important audiences that we must reach.

Retailers, who are on the front lines.
People who influence food safety policy.
Key congressional staff and regulatory agencies.
Also, consumer advocates and the health and nutrition professionals who are current and potential allies.
And, of course produce consumers.

We will first define the problem through several kinds of research. Already we have met with small groups of retailers. Meetings which confirmed what we suspected. That the problem is not national in scope, but where it exists, it is intense.

We also plan to conduct focus groups with consumers. While there have been national quantitative surveys like that of FMI and the Packer which reveal widespread concern over the health hazards of pesticide residues, we don't know the depth of that concern. These groups will help us define why people think the way they do and how or if it has affected their purchase patterns.

We will pretest consumer messages to help identify and red flag those we should modify before introducing materials in the marketplace.

We'll conduct a national consumer panel survey to give us a baseline against which to measure progress and to help us better define our target audience. And finally, we will conduct brief telephone interviews with selected reporters covering these issues to help inform our publicity strategists.

Here is the approach we will take. Our initial energies will be focused on the retailers who are on the front lines. This joint industry program will be the central information source for retailers, policymakers and the media. The campaign will be linked with other complementary efforts already underway such as ProQuality program. All of this will lay the groundwork for a major effort to boost consumption supported by the Research and Promotion Act, I mentioned earlier.

Our strategy is to establish a symbol for the produce safety assurance programs already in place and to use that symbol in a communications campaign.

This is an example of what that symbol could be. I emphasize that this is an example, not necessarily a final execution. But you can see how it can work ... in consumer advertising, point of purchase, a consumer brochure and other items.

A consumer brochure describing produce safety assurance program now in place and the role of the industry will be available for retailers.

Each of these reproducible materials would be included in a retail kit. A kit which will be flexible, allowing retailers to put as much emphasis on the issue as they want.

For the more aggressive, there will be posters like this one. And sample newspaper ads like this one. The headline says "What your mom told you a zillion times has been just confirmed by your uncle." Subheads and body copy tell the story about Uncle Sam's new recommendations for a healthy America.

In addition to providing retailers with information, we want to give them immediate access to factual information about produce safety. We'll do this through a hot line accessible to them (not to consumers).

The food trade and health and nutrition professional press are important vehicles for us to use to get our message out. We'll use advertising in the food trades to introduce the program and reach retailers.

We must also educate consumer media as they, too, need a center for reliable information. A resource center would be set up to offer technical and lay materials for distribution to the press and broadcast footage to support television stories. It would respond to breaking news or inaccurate coverage and arrange audio briefings where the issue is really hot.

Here is where ProQuality becomes part and parcel of the overall program since it already is heavily involved in the implementation of just such a media education program.

A consumer advertising component also is slated to kick off the program. We will sponsor a special supplement in USA Today, like this one sponsored by the Swimming Pool Industry. The editorial copy for our supplement will focus on the health benefits of fresh produce. Advertising in this special section will include ads on the campaign like this one, as well as advertising from members of both associations.

The last important audience we will be targeting is policymakers. We hope to conduct a produce safety policy forum here to examine policy alternatives. This forum will position our industry squarely in the lead in refining and improving the produce safety assurance systems and will insure that the industry's point of view is fairly presented.

And what would a marketing trends review be without mention of one of the most successful promotional efforts of all. That of the individual states touting their own homegrown produce. Here are a couple of examples of states (New York, New Jersey and Wisconsin) which have embarked on very successful and visible campaigns.

These are examples of state departments of agriculture capitalizing on the consumers' desire for fresher than fresh. And it certainly takes me back to my youth when fresh was that which you could buy in season.

Other states whose activities should be mentioned are Florida, Texas, Maine, Michigan, Montana, Nebraska, Nevada, New Hampshire, California, Pennsylvania, Oregon, Texas, Vermont and Wyoming. And that isn't all of them.

Another trend that goes hand in hand with this is the increased popularity of the roadside stands. The boutiques of the Baby Boomers. Direct marketing still accounts for only 2 percent of the US agriculture sales, but it's a 2 billion dollar industry, according to American Demographics magazine. And, that is expected to grow.

Stores themselves are changing. Electronic marketing is growing by leaps and bounds. The reasons? Marketers recognize that 80 percent of the buying decisions are made at point-of-purchase and produce is a leading impulse item. Did you know that? So the search is on for real impact media buying in the face of escalating costs of television advertising. Another factor is the increasingly poor performance of free standing inserts in newspapers which are being replaced by high value in-store coupons that command an 80-90 percent redemption rate.

We at United have seen the success of electronic marketing as evidenced in the results tallied by retailers using our Fresh Tip Tape point-of-purchase video program. The next generation is already there --- interactive kiosks with laser discs. Other marvels which have arrived on the scene are Silent Radio which delivers news bulletins via screens at the check out stations and a system that can deliver product specific messages via large television screens in store aisles.

And now to finish this morning's overview with a look at what's ahead ... and it's what's ahead that has our industry talking about the possibility of a Research and Promotion Act.

A draft act has been presented --- a Swiss Cheese document, as I call it, because it's full of important holes, like what the assessment rate should be, who would be assessed and good things like that. It is a strong possibility, however, because the groundwork for these acts has been laid by dairy, eggs and beef. With industry support, it is conceivable that the act could go through with the 1990 farm bill. The referendum would be deferred for 18 months, like beef, to enable a program to get up and running and show some results before going to a vote. But as we all know, the success of these efforts is, unfortunately and historically, in direct proportion to the depths to which the respective industry has sunk economically. Certainly produce has not faced a strong downturn in consumption and rejection by the health community, as did beef. Produce doesn't have the fat and cholesterol problems of dairy. In fact, let's face it. For all the concern about pesticide residues, there is no evidence of consumers turning away from the produce counters.

But in reality, looking ahead many industry leaders do see the challenges that will be facing the produce industry. And, it's this long range thinking that moves the idea of an act ahead.

First of all, as a lawyer friend of mine says, "We are going to be faced with a problem of the share of the American stomach."

What he means is this.

We are an aging population. By the year 2030, the percentage of Americans over the age of 65 will rise from under 12 percent to 25 percent.

We'll be older, true, but we also will be wealthier. Many retiring on two incomes, and certainly healthier. We'll be better educated, with three-quarters of us having a high school education and at least a third will have a year or more of college.

We'll be more health conscious but we are going to eat less. The older we get the less food we need and the fewer calories we should consume. At the same time, the number of food items competing with produce will continue to grow. The average rate is about 4 percent a year. So, in a word, we are going to have a smaller market, eating less, but having more to choose from. That's what the "share of the American stomach" is all about.

We are going to have increased competition. That's a new thought for the produce industry.

The demand for convenience will continue to grow. Microwavable meals, smaller servings, handy packages, easily stored, all will be in order. Price will continue to be a concern. Say, isn't it about time that our industry does some price value studies? We don't even know WHY consumers buy or don't buy our products. If we had our act in place, we'd have the funds to find out --- and stay up-to-date.

As other industry reps have said, "We will no longer be able to sell what we produce. We'll have to produce what we can sell." That's the kind of thinking that will be driving the marketing of the 2000s. The produce industry really needs to look at a structure which can respond to the challenges ahead before they become problems.

But, it's a great industry and a wonderful place to be right now. We are king of the hill. We are responding to our immediate problems and enjoying the successes that accompany the approval and support of the health professionals and our own Surgeon General.

I realize that there are important areas in the chain that affect the marketing of produce that I haven't addressed --- such as transportation. What I have tried to convey to you is the excitement that has infused the marketplace, and to illustrate for you the coming of age of fresh fruits and vegetables.

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United States Department of Agriculture
Washington, D.C.



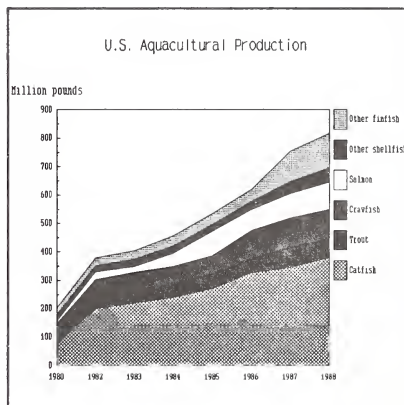
Outlook '89, Session #17

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AQUACULTURE IN THE 1990s

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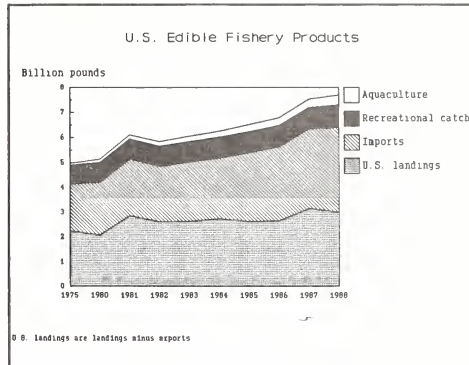
U.S. aquacultural production of non-food and food finfish, shellfish, and other products has increased by more than 20 percent annually since 1980. Domestic aquacultural production amounted to over 750 million pounds with a value of more than \$650 million in 1987. Catfish, crawfish, and salmon are the fastest growing of the developed aquacultural industries. The catfish industry, representing almost 45 percent of U.S. aquacultural output, has increased four fold in seven years, from under 80 million pounds in 1980 to over 350 million pounds in 1987. The crawfish industry, representing about 13 percent of production, has increased from under 25 million pounds in 1980 to more than 95 million in 1987, while salmon has grown from less than 8 million pounds to more than 85 million and represents 11 percent of aquacultural production. Although catfish, crawfish and salmon are the top three aquacultural industries based upon pounds of output, catfish, trout and baitfish are the top three industries based upon value of output. Catfish is the highest valued aquacultural industry at over \$275 million of farm product in 1987, with baitfish and trout a distant second and third at about \$70 and \$60 million, respectively.



The growth in aquaculture has occurred in response to the rapidly increasing demand for fishery products, both domestic and foreign. Many factors have contributed to this boom including changing consumer preferences, changing ethnic make-up of the domestic population, increasing household incomes, and more aggressive marketing by fishery processing and marketing firms. Together, these factors have increased the demand for edible fishery products by more than 200 million pounds annually in this decade.

The U.S. record for edible fishery products consumption, 20.2 pounds per capita in 1987 was supplied by four principal components; commercial landings, recreational catch, aquaculture, and imports. Commercial landings of edible

fishery products were 3.7 billion pounds in 1980 while imports were about 2.1 billion pounds with a value of \$2.7 billion. By 1987, commercial landings of edible fishery products had increased to 3.9 billion pounds while imports had increased to a record 3.2 billion with a value of \$5.7 billion. Domestic supply has only increased by 0.2 billion pounds since 1980, while imports have increased 1.1 billion pounds. This 50 percent increase in quantity of imports was accompanied by more than a 100 percent increase in value, indicative of the strength in the demand for fishery products.



Faced with the strong market for fishery products and weak markets for traditional agricultural commodities in the late 1970s and early 1980s, many farmers began to diversify into aquaculture. The rapid expansion in the water area (ponds, raceways, and pens) devoted to production has been the major factor in rising aquacultural output. Other factors included increasing feed efficiency and stocking rates and the development of a marketing infrastructure. Aquaculture now provides over 7 percent of the total supply of fishery products consumed in the United States compared to about 1 percent in 1980.

Will The Rapid Expansion Continue?

Aquacultural output will, almost inevitably, continue to grow into the 21st century. Whether the rate of growth in aquacultural output is sufficient to close the gap on imports and/or satisfy the rate of growth in demand will depend upon several supply and demand factors as well as the extent of government involvement in the industry.

Demand Factors

The level of demand for aquacultural products will certainly be a limiting factor in industry expansion. The demand for aquacultural outputs will be largely determined by the overall demand for fishery products, as aquacultural outputs are just one component of the total supply of fishery products. Thus, the demand for aquacultural products will depend upon the level of household incomes, price competition, product preference, and substitutability of domestic aquacultural products for fishery products from wild stocks. An analysis of demand factors for shellfish and finfish recently concluded by Capps (1988) provides an indication of consumer response to changing prices and incomes.

- o Changes in the level of incomes will effect both the total quantity of fishery products and the type of fishery products consumed. A one percent increase in household income will increase the demand for fishery products by 0.1-0.2 percent. Thus, a continued 3 percent increase in household incomes could be expected to increase consumption 50 million pounds per year. Increasing household incomes would have the largest effect on demand for fresh fishery products, followed by demand for frozen products, and then for smoked, canned, and pickled products.

- o Changes in the price of a particular fishery product relative to the price of other fishery products and meats will effect the level of demand. Changing the price of a particular product relative to other fishery products will have the largest impact on products that are close substitutes. However, a change in the price of shellfish products will have only a small impact on the demand for finfish and a change in the relative price of red meats and poultry should have little effect on the demand for either finfish or shellfish. The supply of finfish is likely to increase at a faster rate than the supply of shellfish placing stronger pressure on shellfish prices relative to finfish prices. The increased shellfish prices will reduce the rate of growth in demand for shellfish while providing additional growth in the demand for finfish.
- o Consumer preferences will continue to have a great effect on the growth in demand for fishery products pending any severe change in prices or household incomes. The shift in dietary habits toward nutritional foods coupled with consumers' increasingly favorable perception of the health benefits of fishery products has played a strong role in the rising demand during the 1980s. The strong decline in East coast demand for fishery products which occurred this summer in conjunction with the highly publicized coastal water pollution by raw sewage and medical wastes is indicative of the large role public perception plays in forming consumer preference for fishery products. The more confidence consumers gain in a particular fishery product the greater will be its substitutability for other fishery products. Consumers are likely to have more confidence in grain fed aquaculture products raised in controlled environments than in wild harvest products. Thus, an aggressive marketing strategy which promotes a distinction between aquacultural products and other commercial fishery products and provides both retailers and consumers with appropriate information about the product, its preparation, and presentation, will aid aquaculture in gaining a larger share of the fishery market.

Supply factors

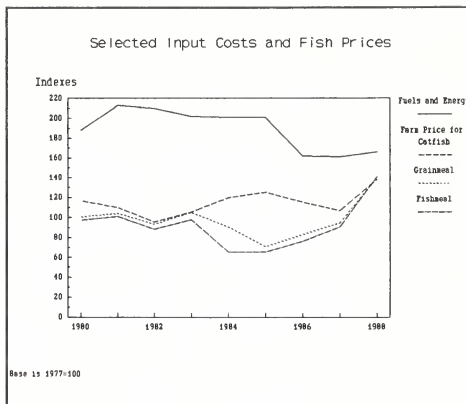
An increasing demand for fishery products will provide upward pressure on prices and thus an incentive to all suppliers to increase output. The U.S. commercial fishing fleet may increase commercial landings, but almost entirely as a substitute for current imports. That is, U.S. commercial landings may increase by expanding the fishing and processing fleet. The U.S. fleet will compete with foreign fleets for an almost static stock of fish, meaning an increase in domestic landings will be offset with a loss in foreign landings. Non-marginal increases in the level of imports will be achievable only through the reduction in fishery product consumption in other countries. Aquacultural producers will compete with domestic and foreign commercial fishing fleets for a share of the market for fishery products. The ability of aquacultural producers to compete with the commercial fishing fleets will depend upon the level of input prices and their ability to overcome resource scarcity, institutional, and specific production problems.

- o The change in input prices, particularly for feed and energy, provides the greatest uncertainty in attempting to forecast the rate of growth in the aquaculture industry. The highly variable cost of aquacultural inputs could place producers in a cost-price squeeze that impedes expansion. Feed constitutes almost half of the operating cost associated with aquacultural

production of finfish, while another 15 to 20 percent is the cost of energy for pumping, aerating, and other activities. The salmon and trout (and other cold water species) industries rely heavily upon fishmeal which has more than doubled in value within the last year.

Catfish, striped bass, and other warm water species utilize soybean meal, cornmeal, and other traditional feed grains. World market prices for these commodities also doubled this year. The increase in soybean meal prices, which comprises

roughly 50 percent of the warm water finfish diet, led feed prices to jump up to 60 percent on forward orders. If the prices of feed grains and protein supplements remain high during the next few years, returns would be reduced and output expansion stifled. Catfish, salmon, and striped bass prices over the next few years may be high while supplies are tight. The tight supplies and high product price is part of a 3-5 year cycle. During this period of the cycle producers earn returns sufficient to induce expansion. Output prices may not increase in response to rising input prices due to the price competition from close substitutes. The 1988 farm prices for most aquacultural products were high in response to the tight market prior to increasing feed prices. Any further increase may reduce demand for the product.



- o Resource scarcity will be a lingering problem in the industry. In the next 3-5 years, the scarcity of high quality water, capital, management, and marketing services could pose a limit on output expansion. States such as North and South Carolina, Oklahoma, and Texas, with readily available high quality water resources, rarely have access to the management and marketing services or low cost capital necessary to develop an aquacultural industry. In contrast, Mississippi which has sufficient management and marketing services does not have new sources of high quality water resources available to sustain the current level of industry expansion. The ability of the aquaculture industry to overcome state boundaries and combine water, capital, management, and marketing resources will play a major role in expanding output.
- o Institutional constraints have plagued the aquaculture industry from the very beginning. Aquaculture falls under the jurisdiction of the Departments of Commerce, Interior, and Agriculture at the federal level, numerous and varied State and Local departments and agencies, and faces regulation from the Environmental Protection Agency, Army Corps of Engineers, and numerous other Federal, State and local regulatory authorities. The many different Federal, State and local authorities involved with aquaculture complicates the task of developing or implementing an organized plan for industry expansion. Currently,

aquaculture institutions are segmented by species and between producers and processor/marketing firms. Individually, none of these associations, groups, or institutions are capable of soliciting the Congressional attention commanded by the commercial fishing industry or agricultural commodity groups. The various segments of the aquacultural industry may be forced to aggregate into a common political action committee (PAC) to obtain access to public research, extension, financial, and insurance services currently provided to the more traditional agricultural commodity groups. The quicker aquaculture industries evolve and combine into a single organization the more effective aquaculture will be in reducing institutional barriers, allowing industries to more rapidly resolve problems and increase their rate of growth.

- o Production problems occur in each aquaculture industry and limit the ability of that industry to expand through increased efficiencies rather than increased resource use. Research is needed to assess nutritional needs by species and age, develop therapeutics to treat diseases and eliminate parasites, develop genetically superior species, improve water quality, increase stocking rates, increase dressing weights, and improve reproduction, harvesting, and processing techniques. The segmented aquaculture groups have been unable to compete for sufficient public resources to establish adequate research capacity. The current level of research capacity limits the number of problems which can be solved at any one time. The evolution of aquaculture groups into a single organization may aid in shifting priorities for public research resources toward aquaculture. This shift in resources will expedite the development of greater efficiencies in aquaculture, increasing output without additional resources.
- o New species will be a major source of output expansion over the next decade. Commercialization of many species, indigenous to certain geographical areas in the United States could enable the use of resources not currently involved in aquaculture. For instance hybrid striped bass, with a ready market, can be produced on the East Coast. Striped bass, once a major commercial fish on the East Coast has been unavailable due to a moratorium on its catch. Fish such as carp and tilapia may supply specific ethnic markets. Other species such as soft-shelled crawfish, touted as a cross between lobster and shrimp by food critics, may gain a share of traditional markets upon gaining consumer confidence. Still other species such as muskie, walleye, and pike may become commercially produced to satisfy specific regional markets once supplied by recreational sources.

Aquaculture Output Cycles Likely To Continue

The 1989 crop year will show little expansion for traditional aquacultural outputs. Catfish output should increase 3-5 percent and supplies should continue to be tight. Most of this increase will come from new facilities that were developed in 1987. Baitfish and tropical fish should remain at relatively the same level of production and value. However, increasing demand for catfish fingerlings may reduce acreage in Arkansas devoted to baitfish in favor of catfish fingerling production. Salmon production will continue to expand as new facilities come on line. Crawfish production, in response to two consecutive years of low prices, should probably decrease as acreage declines. Trout and shellfish production should see small increases in output. Output of new

species will grow rapidly but continue to supply a very small portion of total aquacultural output.

The high prices and short supplies for 1988 have led to the expansion in acreage for many aquacultural species. This expansion in acreage coupled with modest increases in feed efficiency and stocking rates will lead to an expansion in output for the next 2-3 years with prices declining as current markets become saturated. As growth slows in current markets, industries with aggressive processing and/or marketing firms will establish new markets through product differentiation and/or promotion. The new markets will enable demand to continue to increase faster than supply, increasing prices and providing the industry with an incentive to expand output. As a minimum of two years are required to expand output (one year to expand fingerling production, one year to expand food-fish production), the excess supply-excess demand cycle will probably occur over 3-5 years provided other factors previously mentioned do not intervene.

Aquaculture In The 21st Century

Of the many factors which will determine the rate of growth in aquacultural output, changing consumer preferences may likely be the over-riding factor. The trend towards less red meat and more poultry and fish which began in the late 1970s continues today. Thus, the demand for fishery products will continue to grow if the industry can continue to provide a constant volume of consistently high quality and reasonably priced product. Output will probably reach about 2 billion pounds by the end of the next decade. Catfish, salmon, striped bass, trout, and crawfish should provide the greatest share of output. If aquaculture is able to command a share of the agricultural research resources sufficient to develop the research capacity in line with other major agricultural crops, output expansion may reach 3 billion pounds by the 21st century. Under this best scenario aquacultural output may grow over the next 10-15 years as follows;

- o Catfish production could reach 1 billion pounds of output by the turn of the century if new markets, particularly export markets, can continue to be opened, industry infrastructure can be expanded out of Mississippi and into other states, and production efficiencies can be gained.
- o Crawfish production could double by the end of the next decade with the development of an aggressive marketing campaign to increase consumption of crawfish outside of Louisiana. Soft-shelled crawfish could play an important role in the expansion.
- o Salmon output may double in the next decade provided new production sites can be obtained and competitiveness with other rapidly expanding producers can be maintained. Future markets for salmon will be highly volatile as numerous countries expand production and wild catch, still a major part of world supplies, continues to fluctuate.
- o Increases in aquacultural shellfish output, particularly bivalve mollusks, will occur as a substitute for wild harvest. Aquacultural production of mollusks will likely remain mostly in the hatchery stages with grow-out continuing in the ocean.

o Striped bass is likely to be the fastest growing aquacultural product over the next ten years. Striped bass has a ready market and pond and cage culture has already begun. Adaptation of production, processing, and marketing technologies from the catfish industry should enable this industry to shorten the start-up period. Output could exceed 100 million pounds if specific production problems can be solved and production costs reduced.

o Trout production may increase about 25 percent as genetically superior fish and better fingerlings increase the growth rate and lower production costs. More aggressive marketing and product differentiation could increase the market for this fish. Movement into export markets could provide this industry with considerable room for expansion.

New species will continue to appear and some will be commercialized. Those species currently harvested through recreational catch such as perch, walleye, and pike may fill a niche by providing a constant supply. New species such as Tilapia and carp will require aggressive marketing and promotion to become part of the U.S. consumers diet.

Summary

Growth in aquacultural production is driven by both demand and supply factors. Factors which increase the demand for fishery products will also increase the demand for aquaculture products. The increase in demand will place upward pressure on prices, increasing profits (*ceteris paribus*) and providing an incentive to producers to expand output. Factors which increase production efficiency will enable output to expand in the face of constraints on financial, management and natural resources. Aquaculture is likely to continue to grow throughout the next decade, but at a rate less than existed in this decade. Many factors could increase the expected rate of expansion. The most important influence on the rate of growth in aquacultural output will be the amount of public resources allocated to aquaculture to improve production and find new markets. There exists today, enormous potential for growth in aquaculture, but until sufficient research capacity is developed for this industry its potential is likely to remain just that.



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OUTLOOK FOR AQUACULTURE PRODUCTS IN THE U.S. MARKETPLACE //

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By virtually every measure the outlook for aquaculture products in the U.S. marketplace is positive. Production is up, more species are being farmed, technology is improving, and consumers are eating more seafood than ever before. However, while all of the trends are up, significant hurdles remain before the industry reaches its full potential.

Neither the market positioning nor operational requirements of a successful aquaculture operation are well understood by those familiar with this country's traditional commercial fisheries. Fish and shellfish farming are still quite new to consumers, retailers and restaurateurs, distributors, and regulatory agencies, including the Departments of Commerce and Agriculture. To many American food experts, aquaculture remains as amorphous as say, farming Belgian endive.

However it is an industry that, internationally, has become quite significant. One-eighth of the world's seafood now comes from aquaculture and by the end of the next decade, aquaculture will produce one out of every five pounds of seafood. It is time that we, in the United States, recognize the importance of aquaculture in fulfilling our present and future food consumption needs.

Aquaculture shares numerous problems with the production of other farmed foods: feed conversion, nutrition, disease prevention and treatment, adverse weather, predators and dealing with regulatory agencies to name a few. However, it differs in that it

operates in a environment foreign to man where the tolerance for error is much lower.

Salmon farming is a fairly typical example of what is required for profitable saltwater aquaculture. It is about raising market size fish in less than three years for under \$1.75 per pound. As a point of comparison, it takes a salmon in the wild 4 to 5 years to grow to market size.

While my slides show Ocean Products' operations in Maine, the technology, facilities and the farms are similar throughout the world.

We begin with brood fish that are carefully chosen for their genetic superiority. In late fall, their eggs are stripped and then transferred to fresh water hatcheries where they grow for about six months. The young fish, then known as fry, are moved to fresh water grow-out tanks for one year, where they are fed a special diet and grow into smolts.

In April and May of each year, the smolts are moved to ocean cage systems which will be their home for the next eighteen months. This is also a stage where the salmon encounter potential predator problems from comorants and seals. The salmon are fed, weighed, counted and ultimately harvested.

This is basically the technology of salmon aquaculture. It is a process of vigilant, daily husbandry practices that has much to gain from government assistance.

Consider the range in market potential for aquaculture products in the U.S. for 1990 and beyond:

We can expect demand, in terms of live weight, in 1990 to range from a conservative projection of 1.3 billion pounds to a more aggressive estimate of 3.1 billion pounds. To put that in perspective, the range is from 70% over 1986 actual demand to 200% over 1986 demand.

In making these projections, I am assuming that per capita seafood consumption in 1990 will be 5 to 30 percent higher than the 1987 level of 15.4 lbs. That means a 30 percent increase is needed to reach the industry's 1990 target of 20 lbs. per capita.

If we generously assume that the wild catch available to the U.S. marketplace can increase 4% annually, we will be left with a gap between wild supply and consumer demand of 1.3 to 3.1 billion pounds live weight. At an average wholesale value of \$3 per pound, this production challenge represents 4 to 9 billion dollars. That accounts for the obvious appeal of aquaculture among private and public investors.

Now, what do we have to do to achieve this potential?

Certainly, sophisticated marketing techniques will be required, but that will be determined by individual producers and forces of the marketplace. We can expect most aquaculture products to follow the scenario of catfish from limited production to regional acceptance, increased competition, stable prices, national distribution, high-profile marketing and finally to widespread consumer buying.

Production growth, on the other hand, requires improvements in the technology of fish and shellfish farming, and this is where a partnership between government and industry can payoff.

Paralleling technical advances in American agriculture, development is needed in genetics, nutrition, feed conversion and disease prevention, diagnosis and treatment. But unlike the difficult times faced by agriculture, the return on federal and state investment in aquaculture is quite high, whether in the form of grants, low interest loans, tax relief, or research assistance.

An example of this success is Ocean Product's upcoming partnership with Eastern Maine's Penobscot Indian tribe. We offer raw product and efficient technology. The Indians provide a labor force and government financing of a fish processing plant. Together, we'll produce a profitable product and good jobs where traditionally there have been few. This partnership and Ocean Products' existing operations are an economic boon to rural Washington County, a region which claims the lowest per capita income in Maine.

The potential exists for this success story to repeat itself over and over again. However, state and federal regulatory agencies must do a better job of coordinating their activities to support

this developing industry. The aquaculture industry operates in an international market. If in the U.S. too many obstacles are thrown in its way, the industry will move to other parts of the world where more support exists.

Aquaculture development in Scandinavia, Latin America and the Far East already exceeds that in the U.S. The advantage we have is that they're all producing for the American market. We're already here and should therefore be more efficient producers. Government must help.

From the market's standpoint there are distinct benefits to aquaculture products: They set a high standard for seafood quality because they can be held in the water until orders are placed. They can be delivered on a year-round basis and fit neatly into long-term purchasing strategies. Shrimp and catfish are both good examples of consistency in pricing. And products that are generally uniform in size can be harvested making consumer-ready cuts easier to deliver.

On the marketing side, there are tremendous opportunities to brand seafood, particularly at the retail level which now provides less than one-third of the seafood consumed in this country. Value added products will open up new market segments at both retail and foodservice just as they have for poultry and beef. The result will be a rapid increase in seafood demand.

What must not be allowed to enter the equation is negative advertising. As USDA develops programs to support aquaculture development, the potential for non-productive rivalries exists with the U.S. Department of Commerce as it goes about its daily activities in support of the traditional commercial fishing industry. Both agencies must recognize the potential for conflict and take measures to assure that aquaculture development does not occur at the expense of traditional fisheries.

There is, clearly, a great deal of work to be done. But who can turn these ideas into action?

First, there are the producers themselves. There are *thousands* of companies in the United States involved in aquaculture. These companies, along with a growing list of support industries, should meet on a regular basis to exchange ideas, solve problems and speak to our constituencies with one voice. Conferences such as the one

held in Vancouver in September go along way toward developing industry unity. We need to do the same in the U.S.

All aquaculture producers should be supporting the National Fisheries Institute for that organization provides a valuable forum where we can meet and work out our problems with the processors of seafood caught in the wild. We share their concerns over issues such as quality control and inspection, and we should be speaking to legislators through the same body.

The media should communicate to the public how aquaculture products are raised. There has been ample media coverage of seafood harvested in polluted waters. However unfair or narrowly reported those of us in the seafood industry believe those stories are, they have had an enormous impact and unfair or not, have dampened the public's enthusiasm for eating seafood. While these stories are sorted out, the press should note that not all seafood is suspect. Consumers can rely on aquaculture products raised in clean waters and on wild products caught in safe waters.

Finally, as I pointed out previously, there is much that government can do to assist us. Aquaculture innovation centers, for example, have already been set up in Maine and are being administered at the state level. The USDA can foster more focused research and technology transfer to private industry from its regional aquaculture centers across the U.S. These are just a two areas where additional government assistance is needed.

To return to my original premise, the trends for aquaculture are up in virtually every respect. And the potential return to consumers, industry and government are great indeed. However, where we end up in the production range of 1.3 to 3.1 billion pounds will be determined by how successful we are at forging a constructive and mutually beneficial partnership between government and industry.

ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

United States Department of Agriculture
Washington, D.C.



Outlook '89, Session # 19

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1989 OUTLOOK FOR TOBACCO

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The second half of the 1980's decade is a transition period for the tobacco industry. Production is being held below pre-1986 levels while surplus stocks of tobacco are being depleted. The industry faces continued declines in U.S. consumption of most tobacco products, heightened antismoking activity, a greater number of more stringent restrictions on tobacco use and higher taxes. Still, buoyed by legislation enacted in 1986 that significantly changed the quota setting procedure, price support levels, and no-net-cost assessments for burley and flue-cured tobacco the outlook for tobacco has improved markedly. Supply and demand are almost in balance, cigarette production is rising because of hiked exports, increased domestic leaf use and exports are in prospect, and increases in leaf production like the last two years are anticipated for several more years.

The U.S. tobacco outlook for 1988/89 is highlighted by sufficient supplies overall, but shortages of some grades of tobacco have developed. Compared with a year earlier, U.S. prices are higher as the quality of this year's crop is relatively good despite drought stress in some areas. Both domestic use and exports may rise. U.S. production in 1988 is up about 12 percent from last year's low level. However, even with larger production lower carryin stocks reduced supplies about 7 percent to 4.2 billion pounds, with decreases in nearly every type.

The size of the 1989 crop will depend in part on USDA's decisions on quotas, which must be made by December 15 for flue-cured, February 1 for burley, and March 1 for other kinds. The shortening supplies suggest that the basic quotas for flue-cured and burley will be raised, but the key is whether manufacturers' buying intentions increase. Effective quotas will likely be higher for both flue-cured and burley tobacco in 1989. Production of all tobacco may be up next year if yields are average. Prices in 1989 are likely to stay near the higher 1988 levels because supplies of some grades of tobacco may be in short supply. Consequently, the value of the crop may increase in 1989.

U.S. Cigarette Sales Declining, Exports Up

Cigarettes are the dominant product of the tobacco industry in the United States and most other countries. Because of an increase in exports, U.S. output may rise to 705 billion pieces this year, about 15 billion above 1987 and the

third highest on record. However, U.S. cigarette consumption may fall about 1-1/2 percent this year. Consumption per person in the United States 18 years and older may drop by 75 cigarettes (about 4 packs of 20) from 3,196 to 3,121. This would be the lowest since 1944 and 28 percent below the 1963 peak. During the 1970's, cigarette smokers shifted toward low-tar brands. However, there has been a reversal since 1981. From 1981 to 1985 the low-tar proportion (15 milligrams of tar or less) fell, but it rose a little in 1986 to about 55 percent where it remained in 1987. The low-tar proportion may rise a little further this year.

Despite an increase in the smoking age population, total consumption of cigarettes is likely to decline again in 1989 and per capita consumption is also expected to decline. Price hikes because of increased manufacturers' costs and to maintain or enhance profits together with tax increases are primary among reasons for the expected decline in both total and per capita consumption. The Federal excise tax has remained at 16 cents a pack of 20 since 1983, but 4 States raised taxes an average of 4.3 cents a pack in 1988. State taxes now vary from 2 cents a pack in North Carolina to 38 cents in Minnesota. Fifteen States now levy excise taxes of 25 cents a pack or more. The combined city and state tax is 43 cents in Chicago, Illinois. Further state tax increases will occur in 1989. In California the rate will increase to 35 cents a pack, a 25 cent hike, on January 1.

Wholesale cigarette prices rose in December 1987 and again in June this year. For the last 6 years manufacturers' have raised wholesale prices 3 to 5 percent at about 6-month intervals (they rose more than 10 percent during the past year). Retail prices have risen 6 to 9 percent a year and at a faster rate than overall consumer prices. As prices have risen, sales of generic and value-priced cigarettes (priced 15 to 35 percent lower than standard brands) have risen and now account for over a tenth of U.S. cigarette sales.

Antismoking activity, including legislation, continues to affect the industry. Forty-two States either prohibit smoking in certain places or segregate smokers and nonsmokers. Twelve States regulate smoking in the workplace of both government and private employers and an additional twelve States regulate smoking in government workplaces. The General Services Administration (GSA) has implemented stringent smoking restrictions in buildings it owns and leases. Also, a large number of towns and cities have smoking restrictions. The U.S. Department of Health and Human Services and voluntary health agencies have stepped up efforts to discourage smoking. The cumulative effect of publicity and ordinances on smoking is uncertain, although it almost surely accounts for some of the downward trend in per capita consumption.

In April, a Federal law banned all smoking on U.S. airline flights scheduled for 2 hours or less. The ban is scheduled to expire in 2 years. Canada imposed a similar ban on smoking last December, and California started banning smoking on flights within that State beginning in January this year.

Bills have been introduced in Congress to ban all advertising of tobacco products, ban the sale of tobacco products in vending machines, and require cigarette packages to bear a label indicating that nicotine is addictive. These bills were spawned primarily by the release last May of "The Health Consequences of Smoking--Nicotine Addiction" by the Department of Health and Human Services.

The report concluded:

- o "Cigarettes and other forms of tobacco are addicting."
- o "Nicotine is a drug in tobacco that causes addiction."
- o "The pharmacologic and behavioral processes that determine tobacco addiction are similar to those that determine addiction to drugs such as heroin and cocaine."

Changes in Tobacco Per Cigarette Affects Total Use

Tobacco use in cigarettes remained relatively constant during the 1970's and in 1980 and 1981, despite the gain in cigarette output. For many years, manufacturers could economize in leaf use as they shifted to filtertip brands and used the whole leaf. Later, manufacturers began using various leaf expansion processes and in recent years have used more imported tobacco to stabilize costs. With production declines from 1981 to 1986, total tobacco use declined, but hikes in cigarette production in 1987 and 1988 are boosting leaf use.

U.S. cigarette manufacturers used an estimated 1,222 million pounds of tobacco (unstemmed processing weight) in cigarettes in 1987. This was about 6 percent above 1986 as total cigarette production rose and leaf use per cigarette was up a little. This calendar year, with cigarette output rising perhaps 2 or 3 percent, manufacturers may be increasing their total leaf use.

Manufacturers used an estimated 1.77 pounds of tobacco (unstemmed processing weight) per 1,000 cigarettes produced in 1987, about 1 percent above the year earlier, but considerably below the levels of 15 to 20 years ago. Domestic flue-cured accounts for about 35 percent, burley 28 percent, and Maryland 2 percent. Foreign grown was 35 percent; fifteen years earlier it was 15 percent.

Consumption of Other Tobacco Products Mixed

Large cigar consumption will likely decline about 7 percent to 2.5 billion in 1988. Production of little cigars--less than 3 pounds per 1,000--may rise for the second year in a row, after a steep decline 2 years ago. Large cigar consumption in 1988 is expected to continue the decline that started in 1970.

Smoking tobacco consumption may have fallen to 23 million pounds in 1988, about 3 percent below the previous year. Consumption of chewing tobacco has likely fallen. Both smoking and chewing consumption are likely to fall again in 1989.

Consumption of chewing tobacco probably continues to be hurt by price hikes, publicity against smokeless products, and legislation enacted in the mid-1980's. The legislation requires rotating warning labels on product

packages, a ban on radio and television advertising, and imposes a Federal excise tax on chewing tobacco. Also, recent legislation imposed a Federal excise tax of 45 cents a pound on pipe smoking tobacco effective January 1 next year.

Snuff consumption may have risen in 1988. An increase in moist consumption is more than offsetting a decline in dry snuff. Snuff consumption may rise again in 1989.

The factors listed above for chewing tobacco also apply to snuff, but after falling for two years, snuff consumption is rebounding. The hike in snuff use in 1988 may be the result of consumers substituting snuff for smoking as the number of restrictions on smoking grows, high employment in industries where workers typically use smokeless tobacco, effective industry promotion of snuff products, and a waning of the impact of warning labels, tax hikes, and antismokeless tobacco use publicity.

World Situation

World tobacco production in 1988 is estimated at 14.2 billion pounds (farm sales weight), up 2 percent from 1987. The larger 1988 production is mainly due to hikes in the United States, Brazil, and China. Production may have been lower in India, Zimbabwe, Malawi, and Turkey.

Of the cigarette tobacco types, compared with 1987, production of flue-cured was higher in the United States and China, but lower in India and Zimbabwe. Brazil's flue-cured production changed little. Burley production was up in the United States, Brazil, Mexico, and Italy, but was about unchanged in Malawi. Oriental production was down in Turkey and Greece, but up in Bulgaria and Yugoslavia.

Production of other types are mixed. Production of dark air-cured cigar tobacco is about unchanged in 1988, whereas production of dark fire-cured and dark air- and sun-cured tobacco may have fallen.

World cigarette production in 1988 may reach 5.2 trillion pieces, or 2 percent above last year's estimate of 5.12 trillion pieces. Although consumption is stagnant or declining in the United States, Western Europe, Canada, and Japan, increased consumption in China will keep annual production changes positive for the world. For 1988, China's cigarette production is forecast to rise by 8 to 10 percent above 1987 to around 1.57 trillion pieces.

Despite China's continued annual growth, stagnant consumption in the industrialized nations will likely slow the increase in cigarette output in future years.

World leaf exports during 1987 rose 3 percent to 3 billion pounds. Leaf exports in 1988 are expected to reach 3.05 billion pounds, up 2 percent from last year's total. U.S. leaf exports were down 10 percent in 1987. However, much of the decline can be attributed to delayed shipments to Egypt and Taiwan this year. U.S. exports are up this year. Zimbabwe's exports in 1988 are also up because of the good quality crop produced there last season. Brazilian exports may be about the same as in 1986 and 1987.

U.S. Tobacco Crop Larger

Tobacco production is up this year because of larger acreage and higher yields. With a little higher support prices and stronger demand, flue-cured auction prices averaged 2 cents a pound above last year. Flue-cured cash receipts from the 1988 crop were up about 16 percent. In addition to higher prices, the no-net-cost assessment charged producers was reduced from 1987's 2 cents to 1 cent (excluding the .13 cent budget deficit assessment) this year, which boosted returns slightly.

As of November 1, the tobacco crop was forecast at 1.33 billion pounds, up 12 percent from a year earlier. Total supplies for the 1988/89 marketing year are down about 7 percent as reduced carryin more than offsets increased production.

Price supports for both flue-cured and burley were a little higher in 1988, but supports for other kinds declined. Burley auctions opened November 21. Prices this season are averaging above a year earlier. Cash receipts from the 1988 burley crop may increase 10 to 15 percent.

At the beginning of the 1988/89 marketing year, grower cooperatives held about 785 million pounds of tobacco (farm sales weight), down about 232 million pounds or 23 percent from a year earlier. Unsold loan stocks of about 525 million pounds on October 1 were down about 29 percent from a year earlier. The reduction came because of special ("buyout") sales authorized by 1986 tobacco legislation and lower takings of burley and flue-cured by cooperatives in recent seasons.

Under buyout provisions, manufacturers agreed to buy approximately 590 million pounds (farm-sales weight) of 1976-84 flue-cured tobacco over an eight year period and about 308 million pounds of burley (farm sales-weight) over a five year period. The buyout is well ahead of schedule with about two-thirds of the flue-cured and over 80 percent of the burley purchased within the first 3 years of the selling period.

The flue-cured auction season ended on November 10 with prices averaging \$1.61 a pound, about 2 cents higher than last year. About 15 million pounds were placed under loan, 9-1/2 million fewer than the year earlier and the lowest on record.

Government price support is mandatory for tobacco produced under marketing quotas. Support levels for 1989 have not been set although preliminary figures indicate the flue-cured support will increase between 2-1/2 and 4 cents a pound.

Flue-cured and burley price supports are the level for the preceding year adjusted by changes in the 5-year moving average of prices (two-thirds weight) and changes in the cost of production index (one-third weight). Costs include general variable expenditures, but exclude costs of land, quota, risk, overhead, management, marketing contributions, and other costs not directly related to the production of tobacco.

Marketings from the 1988 flue-cured crop and unsold 1987 production were about 17 percent above last year's marketings. But, with a smaller carryover, flue-cured supplies for 1988/89 are about 5 percent below last season. The flue-cured effective quota was increased about 9-1/2 percent this year. Because of excess production in 1987, 15 to 20 million pounds of 1987 crop tobacco were sold in 1988. Some growers have tobacco in excess of their penalty free quota (103 percent of effective quota can be marketed without penalty) this year to carry into the 1989 season.

Under the acreage-poundage program, USDA is required to announce the national marketing quota for the 1989 crop of flue-cured by December 15, 1988. The 1988 basic quota was 755 million pounds, or about 175 million pounds below prospective use. Supplies have declined each of the last 7 years and represent about 2.5 years use. Because this season's marketings are a little below 1988's effective quota, the effective quota for 1989 will be higher than the basic quota.

Supplies of burley have declined since 1984, and now represent about 2.5 years' use. The 1988/89 supply of burley tobacco is about 9 percent below last season. Carryover stocks on October 1 were 16 percent below a year ago because use exceeded 1987 production. This year's crop increased 9 percent from last year's. Acreage is up 4 percent and yields are up 6 percent.

During the year ending September 30, 1988, burley disappearance totaled 628 million pounds, 11 percent above the previous year and only slightly below 1979's record. Domestic use rose, but exports were down. Domestic use was up largely because of hiked cigarette production. Exports were off largely because of the poor quality 1987 crop.

Total use may increase in 1988/89 with hikes in both domestic use and exports. Domestic use may rise because of increased cigarette production and substitution of domestic for imported burley. Although higher this year than the last 3 years, prices are still somewhat lower than pre-1985 levels. These lower prices together with the weaker dollar and the increasing demand for blended cigarettes worldwide may keep burley exports up.

For both flue-cured and burley tobacco, legislation requires that the national quota be based on:

- 1) intended purchases by cigarette manufacturers,
- 2) average annual exports for the 3 preceding years, and
- 3) the amount of tobacco needed to attain the specified reserve stock level (15 percent of the basic quota or 50 million pounds of burley or 100 million pounds of flue-cured). USDA's discretion for setting the quota is limited to not more than 103 percent or less than 97 percent of the amount determined by manufacturer's needs and exports, and the reserve stock level. If a quota reduction is required, it is limited to a maximum 6 percent reduction.

The basic flue-cured and burley quotas may be increased in 1989. The effective flue-cured and burley quotas may also be higher. However, if and how much the quotas are raised depends heavily on purchase intentions of manufacturers. Purchase intentions are the largest item in the formula for setting both flue-cured and burley quotas and they are especially large for burley. Consequently, purchase intentions are extremely important in quota determination and they depend on the industry's assessments of future stock requirements.

Among other types of tobacco, supplies of fire-cured, Maryland, dark air-cured, and cigar tobacco are all down.

Producer referendums will be held in early 1989 to determine if growers of flue-cured, burley, Maryland, Virginia sun-cured (type 37), Pennsylvania filler (type 41) and cigar binder (types 51-52) desire acreage allotments for their next three crops. Maryland, Pennsylvania filler (type 41), and cigar binder (types 51-52) voted against quotas in previous referenda.

A Look Ahead

Tobacco production in the United States may rise for the third consecutive year in 1989. Furthermore, hikes in production may continue into the early 1990's. The increases in production are expected because surplus stocks have nearly been used up and current production is below disappearance. Additionally, domestic leaf use is expected to rise because of substitution of U.S. grown for imported leaf, and leaf exports are expected to rise a little because of lower prices of U.S. tobacco and increased demand for burley due to greater production of blended cigarettes throughout the world. Also, cigarette exports are rising because of strong demand for American cigarettes and the opening of markets, particularly the Far East, for U.S. cigarettes.

Hikes in production will be from the relatively low 1986-88 levels. Production levels approaching the 1.8 to 2.2 billion pounds of the 1970's and

early 1980's are not in the picture. Furthermore, production hikes are likely to give way to declines before the mid-1990's because falling U.S. cigarette consumption will likely offset the gains cited above. Manufacturers will likely continue to raise cigarette wholesale prices, state excise taxes on cigarettes will continue to increase, and the Federal excise tax will almost surely be raised, perhaps substantially. Smoking restrictions and other antismoking activity will no doubt continue at the current heightened levels. Cigarette consumption may fall an average of around 2 percent a year over the next several years.

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TOBACCO MARKETING ISSUES

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I commend those who planned the program for this year's Agricultural Outlook Conference for including a topic on marketing in the tobacco section. Our Association feels there are opportunities for improving the way we market our tobacco and we have taken the lead in calling this to the attention of the total tobacco industry. We hosted a two-day tobacco marketing conference earlier this year and believe the groundwork was laid for some progressive changes in the years ahead. Every issue I will discuss today was identified as an important concern by those attending our conference.

My comments will be largely from the perspective of the grower and will focus on flue-cured tobacco since the marketing of each type of tobacco differs so much that it would be difficult to generalize. It would also be impossible to cover every issue relating to the marketing of flue-cured tobacco in the time assigned to me. Therefore, I've identified what I consider to be seven of the most important issues facing the industry. In some instances, I will suggest solutions, but in others I leave it to the industry to make those choices.

For any commodity, the cost of a particular input and the return for that cost represents the basis by which the producer evaluates that input. Tobacco marketing costs are no different. Farmers want to feel they are getting the best possible return from these marketing costs since they do represent a significant item among all operating inputs. The North Carolina Agricultural Extension Service budget for flue-cured tobacco for 1988 estimated selling charges and marketing assessment at \$151 per acre, second only to curing fuel among operating inputs exclusive of land, quota, labor, capital, machinery, overhead and management. Put another way, marketing costs are estimated at 6.6 cents/lb. As a comparison, fertilizer costs are estimated at 5 cents/lb. and pesticide costs, including sucker control, at 9.2 cents/lb.

I am not suggesting these costs are too high or too low. Growers are aware, however, that in other major tobacco producing countries marketing costs do represent a lower percentage of their total costs, giving them a slight competitive edge in the world market. We believe marketing costs need to be scrutinized as carefully as any other input and, if there are opportunities to reduce this cost or return a greater benefit for the same cost, we need to make changes. In discussing some of the other issues I will suggest areas where we believe some additional efficiencies can be achieved.

A second issue on the minds of many tobacco people this year is how to best handle tobacco produced in excess of that years marketing quota, due to a particularly favorable growing season. The 1988 season was a classic example of this problem.

For a number of reasons, which I won't take time to enumerate, many growers found themselves with substantial up stalk tobacco still on hand after they had sold their marketing quota for 1988. It was also some of the best tobacco of their entire crop, tobacco the trade also said it needed to fill their orders. Storing that tobacco on the farm until the 1989 marketing season opens will, at best, result in some deterioration in quality. Many argued that we should have been able to find a way to let the trade take this tobacco and process it in order to preserve the almost vintage quality of the 1988 crop and, hopefully, help them retain some orders that they might otherwise lose. At the same time, however, growers in the Old and Middle belt felt if such a program was authorized it would have a negative impact on their market. Both arguments had merit.

1988, however, will not be the last year we will have a problem with excess production. Our Association believes we need to look at two policy issues that impact this problem. The first is the inability of ASCS to adjust acreage/poundage ratios on an individual farm basis. Under current law these ratios can be adjusted only on a countywide basis. This has no impact on the farmer who has a poundage base of 1800 pounds per acre but who can easily make 3,000 pounds. Or, those individuals, but much fewer in number, who cannot make their pounds on their allotted acres. As long as this situation continues, we will have substantial excess production on many farms, and it will be exacerbated in those years in which we have favorable weather. It's true, growers could adjust production by reducing their acreage but that goes against their basic nature. They'd rather have too many pounds than not enough and they will plant accordingly.

We also believe, in light of our experience in 1988, we need to reexamine the policy change written into the 1986 Tobacco Reform Act that reduced from 110 percent to 103 percent the amount of

total quota a producer can market each year. With weather as variable as it is, a 3 percent allowance for excess production in a good growing year, like 1988, may be too small. Some will argue that a 10 percent allowance is too great. However, I believe there is general consensus that 3 percent is too little.

One solution to our dilemma this year, suggested by our Board of Directors, assuming a way could be found to authorize some type carryover/storage program, was to first of all, after the market closed, accurately determine how much carryover tobacco farmers had on hand. During the burley marketing season the trade could be surveyed to determine the demand for that amount of carryover tobacco. If it was deemed to be sufficient, the flue-cured markets could be re-opened briefly immediately after the burley markets closed. This type program would not impact the Old Belt markets, it would better preserve the quality of this tobacco, it could help export companies hold some accounts it might otherwise lose for U.S. tobacco and it would empty curing barns prior to the 1989 harvesting season.

The number one marketing issue in the minds of growers, year in year out, however, is the grading system. For them, this is the focal point of the auction since they believe the grade placed on a sheet of tobacco substantially influences what the trade will pay for it. The most common complaint is inconsistency in grading. In defense of the graders and the system, I must acknowledge that most growers do not fully understand the standards on which the grading system is based. We need to better educate growers, not only so that they will be less critical, but because it will help them improve the overall quality of their tobacco. This will not completely solve the problem of inconsistency because interpreting and applying these standards is still an individual subjective judgment. Growers are likely to always see their tobacco in a more favorable light than either the grader or the buyer. That's human nature.

One also has to wonder if human judgment is precise enough to accurately and consistently distinguish between 143 different grades, the number on the 1988 schedule. Would our grading be more consistent and uniform if we had fewer grades? Some argue on the other hand, that we need even more grades to accurately describe the wide range of tobacco offered for sale each year. In any event, we need to attempt to find ways of increasing the confidence of the grower in the consistency and fairness of the grading system.

One answer may lie in the use of some objective methods of evaluating the quality and utility of tobacco, in addition to our present subjective method. Such technology is available and we believe it needs to be field tested to determine its usefulness in the market. Scientists at North Carolina State University

have experimented with the use of near infrared spectrometry equipment to quickly measure various quality factors and chemical constituents in tobacco. Within a matter of seconds, it is possible, using this equipment to accurately determine moisture content, nicotine, sugars, nitrogen and some 15 other constituents in tobacco. It can readily sense wet tobacco and the presence of plastics and other foreign materials. The tobacco manufacturing segment of our industry already uses this technology extensively to monitor the composition of tobacco going into their blends.

Changes in the current grading system must come gradually to be accepted by all segments. It seems appropriate to begin field testing the use of near infrared technology in parallel with our current grading system. As we gain experience with it and growers develop confidence in its reliability, it could become the dominant method by which we establish a utility value on an individual lot of tobacco.

One of the obvious ways of reducing the cost of marketing flue-cured tobacco would be to sell it in larger lots. If, for example, we could go to bales or some other packaging system and sell in lots of 1,000 pounds instead of 275 pounds, as we're now limited, you might substantially cut your cost. In our marketing conference, however, there was unanimous agreement that until we can solve the problem of product integrity - basically nesting and excessive mixing of grades - we cannot make any significant changes in the current method of packaging tobacco for sale. Nesting continues to be a significant marketing issue, even though estimates of the percentage of tobacco that is nested varies from only 2 to 5 percent. It's still an issue we must resolve. We believe stiffer penalties must be imposed on anyone - whether it's a grower, a warehousemen or a dealer - who nests tobacco, before we can eliminate this problem. Currently, ASCS says it has no authority to penalize warehouseman or dealers. Before growers are willing to accept stiffer penalties they insist that others be subjected to the same standards to which they are held. We believe a way must be found to do that.

Also related to the issue of product integrity is the problem of illegal and/or excessive pesticide residues in our tobacco. This issue is important, not only because of the concerns of our export customers, but because it is also an issue that can be exploited by the anti-smoking groups. The industry recognized this and demonstrated what it can do when the dicamba problem surfaced in 1986, by responding quickly and decisively. In 1987, concerns were raised by some of our European customers over the abnormally high residues of maleic hydrazide, a chemical registered for the control of suckers, in the tobacco they purchased that year. We believe weather was a significant factor in causing those high numbers but, nevertheless, intensified our

educational and market monitoring program for this material in 1988. The program proved successful since we were able to reduce residue levels of maleic hydrazide on the 1988 crop to their historical level. However, action proposed in October of this year by the government of Italy indicates that level may not be low enough. Italy is considering a regulation that would establish a legal tolerance for maleic hydrazide on re-dried leaf tobacco of 50 ppm, a level we will have difficulty meeting. Compounding the seriousness of this proposal is the reality that if Italy establishes this tolerance it's likely that most other European countries will follow and that would be devastating to our export market. We must continue to educate growers on the seriousness of pesticide residue problems and also continue a pesticide monitoring program similar to the one in place for both the 1987 and 1988 marketing season.

The recent allegations that some U.S. tobacco exports containing imported tobacco have been represented as 100 percent U.S. grown, whether the charges prove to be true or not, have damaged our credibility as a world supplier. We need a certification program that assures our customers that they know exactly what they are getting when they buy tobacco from the U.S. Our Association has been calling for such a certification program for two years. We have requested legislation that would require exporters of U.S. tobacco to indicate at the time of export whether the tobacco is of U.S. origin, foreign origin or mixed origin. For tobacco of mixed origin, the exporter would be required to indicate on a certified report the quantity of imported tobacco contained in the shipment from each foreign source. Such a certification program would do much to restore our credibility with our customers throughout the world and we believe it should be put in place as soon as possible.

A fifth issue we must come to grips with is to find a way, in our current price support program, to adjust prices on individual grades to respond to the changing demands of a world market. In recent years, the demand and relative value for certain styles and types of tobacco - i.e., cutters - has changes and will probably continue to change. We have responded in this particular case by reducing the support price on some of the C and X grades by as much as 9 cents/lb. in the last two years. Yet, a higher percentage of these grades continue to go under loan compared to other grades, indicating they may still be over priced. The law, of course, requires that when the price is lowered on one grade it must be raised on another grade in order to maintain the overall average at its original level. In order to do this, we've been forced to increase the support price on some of the B grades - normally our export tobacco - by as much as 8 cents/lb., causing alarm and concern among some of our export customers. How much further we can go toward this problem using this approach is a real question.

Farmers face a real dilemma. Most contend they cannot afford to market lower stalk tobacco when they have the capability of producing enough tobacco to replace it with higher priced middle and upper stalk tobacco. As a result, the trend has been to harvest fewer and fewer primings and lugs. At the same time, some manufacturers have expressed concern that, if this trend continues, they may not be able to purchase on our market the amount of primings they need each year to maintain their current blends. They say that could force them to go offshore for these tobaccos and the fear, of course, is that when they do they'll also buy other tobacco.

As growers we cannot afford to ignore the concerns of our customers. However, economics make it difficult to convince a grower that it's in his long term best interest to sell \$1.40 tobacco when he knows he can grow enough pounds to replace it with \$1.75 tobacco.

One alternative that has been suggested would be to authorize the Secretary of Agriculture to identify certain grades of tobacco that appear to have very limited demand at present support prices. He would also be authorized to allow growers to market a certain percent of their total quota - say 5 percent - of tobacco in those grades, without price support but would not count against their marketing quota. The grower would then have a choice. If he felt he could make money at the price the market was willing to pay for those grades of tobacco, he could harvest them and still market his full quota of higher priced tobacco. The approach is not without problems. Grading and classification of tobacco, as I pointed out earlier, is not that precise. Serious disagreement could arise as to whether a particular lot of tobacco qualified for the exemption. Purchasers might also find they could substitute these grades of tobacco for other grades, causing those supported grades to then be in excess supply. Nevertheless, I feel the problem is one that we must address and somehow find a system that allows us to better respond to the changing demands of our market.

Superior quality has always been the trademark of U.S. tobacco. Compared to most other major producing countries, our tobacco is still more expensive on a pound-for-pound basis. The margin of our quality difference continues to be a major factor in how competitive we are. For that reason, educational programs have emphasized the production and marketing of high quality tobacco. Some of the recommended practices, such as more frequent harvesting and grading and sorting of tobacco as it comes from the bulk barn, have added to the grower's production cost but the promise was the market would more than pay for that cost. Growers have found that has not always been true. In some years, particularly if the crop was short, there's been essentially no premium for quality. Everything sold for the same price, making

it difficult to be convincing when emphasizing costly production practices that lead to higher quality tobacco.

The average grower has not felt he was paid enough differential to economically justify the expense of extra harvesting or any cleaning up or grading of his tobacco as he prepared it for market. We had begun to make some progress on more frequent harvesting as a way of marketing only ripe, mature tobacco that was separated by stalk positions. During 1988, however, some growers who harvested 5 to 6 times have indicated they feel they were actually penalized because they had a lot of tobacco graded as cutters, and those grades didn't sell well. They say neighbors who harvested their primings and then waited long enough so they could harvest only twice more, had no cutter grades and thus sold their crop for a higher average.

If the trade wants ripe, clean tobacco that is separated by stalk positions, they must be prepared to reward those who offer it for sale and penalize those who do not. Farmers read economic signals very well and will respond accordingly.

The final issue I want to raise relates to the need to develop an improved system of packaging tobacco when it's offered for sale and one that lends itself to a more efficient materials handling system. Grading excepted, growers complain more about availability and quality of tobacco sheets than any other item relating to marketing. Efforts are being made to find a disposable sheet that would be acceptable from a cost standpoint. This alone would solve many problems, including the image of our market and the waste that is associated with poor quality sheets.

However, there may be other packaging alternatives that offer more opportunities for improving the efficiency of our marketing system and we believe they should be researched. Many years ago, the Agricultural Research Service piloted a tobacco marketing system utilizing cardboard boxes that could be moved easily by conveyor belts and trolleys, thus reducing labor on the warehouse floor and virtually eliminating waste. Much of that research may still be relevant today.

During our marketing conference, the group brainstormed on what might be an ideal material handling system for the marketing of tobacco. They envisioned a system whereby a grower could deliver his tobacco in bulk to the auction center. It could be unloaded into a conveyor where it could be graded, as the grower watched, almost certainly eliminating any nesting problems. Using the near infrared spectrometry equipment, moisture content and chemical analyses could be run and printed out for both the grower and prospective buyers. Samples could be pulled by the graders for the buyer to inspect during the auction. The tobacco

could be repackaged, by grades, into configurations suitable for an efficient state-of-art materials handling system. They saw two options for the actual selling: First, the tobacco could be stored on the floor for walk-by selling, as we now do it, or it could be moved to the buyers who would be located in an air conditioned area with constant and uniform light. Following the sale the tobacco could be conveyed directly to shipping points for loading out on buyer trucks.

The technology exists to do all of this. It's a matter of somehow putting it all together and field testing it to find a system that adequately serves the needs of growers, warehousemen and buyers.

Agriculture, per se, has long been guilty of placing far more emphasis on production problems than on marketing. Tobacco is subject to that same criticism. The time has come, however, where we may see more response from efforts placed on improving our marketing system for flue-cured tobacco than from additional work on production.



Outlook '89 Session 20

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OUTLOOK FOR CATTLE AND SHEEP

by
Steve Reed

Beef production is expected to decline next year to the lowest level since 1980. Sharp declines in fed and modest further declines in nonfed cattle slaughter are expected to pull 1989 beef production down nearly 7 percent from 1988's level. The largest declines will result from reduced steer and heifer slaughter. In contrast, expected larger supplies of poultry and large but about unchanged pork output will result in total meat supplies following only slightly below the 1988 record, but above any previous year.

Factors Affecting the Cattle and Sheep Industry

Growth in the general economy is expected to continue next year at a pace slightly slower than 1988's rate. The risk of an impending downturn as the current expansion enters the seventh year remains a concern, but beyond 1989. Over the coming year, consumer incomes should continue rising in real terms and high employment rates are expected to remain intact. Both these factor should provide continued support for meat prices. The risk of renewed inflation remains a concern. However, the rate of inflation, as measured by the GNP deflator, is expected to rise only slightly above 1988's 3.3 percent, to perhaps 4 percent.

The Federal Reserve is expected to keep interest rates above 1988 levels in an attempt to keep inflation under control and also as a vehicle to attract foreign investments into this country. The prime rate may rise to 10 percent in 1989 after averaging near 9 percent in 1988.

It will be important that this favorable economic environment be maintained if expected increases in retail beef prices are going to be met by little consumer resistance. The record retail beef prices during the summer and fall of 1988 likely will be broken by new records price levels in 1989. However, there may yet be a threshold where consumers switch over to less expensive competing meats, particularly as pork and poultry supplies remain very large. Strong demand for beef exports, particularly for higher valued cuts into Japan, will lend price support over the next few years as trade opportunities continues to expand.

Production Costs to Rise

Further modest increases in production costs may occur in 1989. Feed costs have already risen sharply from a year earlier, and impact livestock producer costs through at least the first half of the year. Reductions in

acreage set-asides for wheat and feedgrains should enhance 1989 crop prospects, but this is not expected to have an impact on grain prices until summer as the size of next year's harvest comes into clearer focus. Beginning stocks of corn for the 1988/89 crop year were down 13 percent from a year earlier. The 34 percent decline in the 1988 corn crop has pushed ending stocks forecasts to 66 percent below the 1987/88 level. Stocks of all feedgrains at the end of 1987/88 were down 12 percent from the previous year, and are forecast to drop 61 percent by the end of 1988/89.

Central Illinois corn prices in mid November 1988 averaged nearly 50 percent higher than a year earlier at about \$2.60 per bushel. Additional price gains are not expected until next spring, when another 20 cents may be added to the current range. For 1989, corn prices could average \$2.40 to \$2.80 a bushel, up from this past years \$1.94 average.

Pasture and range feed conditions remained about unchanged in October after improving in most areas in September, particularly in the eastern half of the country. Conditions on November 1 were rated at 59 percent, 12 points below a year ago and 17 points below the 1977-86 average for the date. North Dakota was the only State remaining in the extreme drought range. Idaho, Montana, South Dakota, Texas, Wisconsin and Wyoming were in severe drought.

Hay production, as of October 1, was forecast at 130 million tons, somewhat lower than the August 1 estimate and 13 percent below the 1987 harvest. Area harvested in 1988 increased 10 percent from a year ago to the largest acreage since 1965. Additional marginal acreage was harvested, but in addition the long-term Conservation Reserve Acreage was made available for haying in the drought areas. This additional acreage helped offset the lowest yields since 1966. Alfalfa hay production is expected to decline 18 percent, while production of other hay may be down only 6 percent. Supplies of higher quality hay have been impacted the most in 1988.

Hay prices received by farmers averaged \$86.80 per ton in October, up \$22.10 from a year ago, but only \$1.30 from September. Alfalfa hay prices were \$23.80 above a year earlier, while other hay prices rose \$17.10. Further price increases can be expected into the winter months, particularly in areas most affected by the drought and dependent on off-farm sources for meeting feed requirements. Lower supplies in storage and continued poor range and pasture conditions in several of the Plains and Western States may force additional culling from beef cow herds if winter weather conditions are extreme and supplemental hay must be purchased.

Cattle

U.S. cattle inventories dropped below 100 million head on January 1, 1988 for the first time since 1961. Declines in replacement heifers offset slight increases in steers over 500 pounds and heifers not being held for herd replacement. The inventory of calves under 500 pounds showed the sharpest year-to-year decline, falling 10 percent from 1987.

The July 1 inventory report estimated the 1988 calf crop to be slightly larger than a year earlier. However, the 1987 and 1988 calf crops are the

lowest since 1961. Heifers calving and entering breeding herds during the first half of the year jumped 10 percent from a year earlier, suggesting that producers may yet begin to turn inventory numbers around. A similar restocking rate occurred in 1986, sending a false signal to the industry that the cattle cycle had bottomed out and was beginning to head higher. This past summer's drought was well underway as the breeding season began and will likely stall expansion for one more year.

The impact of this summer's drought appears to have had a greater impact on the dairy sector, which responded to the higher feed costs by increasing culling rates. Dairy cow slaughter had been running well below the larger year-earlier Dairy Termination Program (DTP) levels until June when it began picking up as the drought worsened. By the end of the third quarter, cumulative dairy cow slaughter had increased to within 2 percent of the previous year. This was particularly noteworthy since this coincided with the last quarter of slaughter associated with the DTP. Beef cow culling in 1988 remained well below a year earlier through the heat of the drought, with most producers able to find alternative feed sources and thus able to avoid sending their animals to slaughter. The drought hit hard in areas of the Northern Plains and Corn Belt, likely forcing heavier culling from cow herds due to reduced pasture availability. However, many of these cows were shifted to other areas. Further declines in beef cow slaughter are expected in 1989 as well as some moderation in dairy cow culling rates. Total commercial cow slaughter could decline to 6.1 million head next year, down an additional 2 to 3 percent from this year's 6.3 million head.

Net returns to cow/calf producers likely will reach \$40-\$45 per head this year, below last years \$54 average, but the third straight year of positive returns. Returns should remain in this range in 1989 as high production costs are offset by somewhat stronger prices. This may be a sufficient cushion to offset losses of the early 1980's and shift producers into an expansion mode. Cattle inventories on January 1, 1989 still are expected to remain below 100 million head, possibly falling below this year's 99 million head.

Feeder Cattle Supplies Low

Producers holding stocker cattle this fall have negotiated from a strong position and have kept yearling prices above \$80 per cwt during the past several weeks. Yearling feeder cattle supplies outside feedlots were down 2.5 percent from a year earlier on October 1, while the inventory of lighter calves dropped 1 percent. This was the lowest feeder cattle supply since this series began in 1973. While 1988's calf crop is expected to be about unchanged from a year ago, increased heifer retention for herd rebuilding could sharply reduce supplies this fall and into the next couple of years. Uncertainties concerning Mexican feeder steer availability also will also impact fed cattle marketings, particularly in first-half 1989. Tighter feeder cattle supplies, smaller profit margins, and higher feed costs likely will keep cattle feeders in a cautious mood in spite of expectations for a stronger market next spring.

Fed Marketings Decline

Fed cattle marketings have remained large in 1988 in spite of the tight supplies of feeder cattle. Cumulative marketings from feedlots will approach the record levels of 1972 and 1978, yet when supplies did tighten last spring, prices average a record \$73 per cwt at Omaha for the quarter. Some support for the higher fed cattle prices came from lower processing beef supplies, with nonfed steer and heifer slaughter down sharply this year, and cow slaughter at the lowest levels since 1980. Slight additional declines in nonfed steer and heifer slaughter will occur next year as these animals are bid into feedlots, but the biggest impact on total supplies will come from sharply reduced fed cattle slaughter. U.S. feedlot marketings could decline by 6 to 8 percent or about 2 million head next year. Larger numbers of cattle were pulled forward into feedlots this year due to excellent grass gains last spring, but this only widened the gap in supplies created by the low inventory of light weight calves on hand last January 1.

Lower feedlot placements this past summer and expectations that fall quarter placements will remain near a year earlier could set the stage for record prices next spring. Beyond the spring quarter, continued year-over-year declines in beef supplies should support higher trading ranges for slaughter cattle. Prices for Choice steers at Omaha in 1989 could average near the mid \$70's per cwt, compared to this year's \$70 annual average price. Higher grain prices are expected to keep stronger prices from spilling over to the stocker cattle which still are expected to range near this years average price of \$82 to \$83 per cwt.

Record Prices to Test Consumer Response

One area of uncertainty about the coming year is how consumers will respond to higher retail beef prices. New records were set this past summer when beef prices averaged \$2.59 per pound. It seems certain that additional increases will come as packers and retailers funnel the cost of higher priced slaughter cattle into the retail marketing chain over the coming year. The higher price of beef relative to competing meats has always been a concern, however, the next year may truly test consumer demand for beef products. Per capita total meat disappearance in 1989 is expected to decline slightly from 1988's record 220 pounds. Large poultry and pork supplies at relatively lower prices could hold down beef price gains. After rising nearly 5 percent in 1988, retail beef prices may rise only 1 to 3 percent in the coming year.

Slow Herd Expansion Expected

Returns to cow-calf producers over cash costs are expected to remain positive in 1989. This will mark the fourth-consecutive year of profits following losses in 1981 through 1985. Returns will likely remain in the \$30 to \$60 per cow range, well below the \$60 to \$120 per cow returns in 1978 through 1980. While these returns may encourage increased heifer retention on existing cattle operations it is unlikely to encourage producers who liquidated herds in the 1980's to reenter.

Over the coming year, stocker operators likely will be able to outbid cattle feeders for the reduced supply of stocker-feeder cattle. Thus, excess forage is likely to continue to be used to put more gain on calves. Heavier feeder cattle marketing weights also will put less pressure on producers to expand herds. While cattle numbers are expected to begin to expand in 1989/90, the expansion likely will be slow and inventory could remain below 105 million until at least the mid 1990's.

U.S. Beef Imports

United States' imports of beef increased to 1.8 billion pound, carcass weight, in January/August, 9 percent over the period in 1987. Imports for the year are forecast to reach 2.4 billion pounds, up 5 percent. In 1989, imports may drop 6 to 8 percent due to smaller available supply from exports countries. However, exports will remain, near 9 percent of U.S. beef consumption--unchanged from 1988.

About 85-90 percent of imported beef is covered by the Meat Import Law, which includes fresh, chilled or frozen beef, veal, mutton, and goat meat. The trigger level for 1988 is 1,525 million pounds, product weight, up 6 percent from 1987. As of October 28, the U.S. Customs Service reported that imports subject to that law totaled 1,316 million pounds, product weight, up 3 percent from a year earlier.

To ensure that the Meat Import Law is not triggered, voluntary restraint agreements have been negotiated with Australia and New Zealand to limit exports to the United States to 800 and 445 million pounds, respectively, for the year. The Customs Service has reported that shipments from January through October 28 693 million pounds for Australia and 431 million pounds from New Zealand.

Dry weather in Australia in the beginning of the year increased slaughter, and favorable exchange rates and higher prices in the United States drew larger-than-expected exports here. Pressure for Australia to export to the United States eased somewhat with the announcement of the liberalization of the Japanese market where they are also a major supplier of beef.

Beef imports not subject to the Meat Import Law mainly come from Brazil and Argentina in can or airtight containers. Imports from Argentina are down 10 percent this year due to previous declines in cattle inventory. Herds are being liquidated as real income is eroded by inflation and domestic demand falls. Also, there continue to be a shift from cattle to crops, given the increasing relative prices for corn and soybeans vis-a-vis cattle. Imports from Brazil were up 53 percent in January-August 1988. Exports began to expand in 1988 after being disrupted by economic reforms in 1986 and 1987. Inflation has reduce consumers purchasing power in consumption is stagnat. This has depressed beef prices and given a further boost to beef exports.

U.S. Beef Exports Rise

U.S. beef exports during January-August were up 11 percent from a year earlier to 406 million pounds carcass weight. Most of the increase exports went to Japan, which increase 29 percent over the previous year to 301 million

pounds. Exports to Mexico climbed to 21 million pounds in 1988, up from 3 million pounds for the first 8 months of 1987. Increased demand by the Japanese fueled the increase in the beginning of the year and the announced trade liberalization with Japan should increase exports this fall.

Total U.S. beef exports are forecast at 636 million pounds, carcass weight, in 1988, up 5 percent. During 1989, they are forecast to climb by at least 5 percent, mainly because of increased sales to Japan. This would represent 3 percent of U.S. beef production, up from 1 percent in 1985.

Credit Programs Assist Cattle Exports

U.S. exports of live cattle to Mexico during January-August increased from 30,791 head in 1987 to 120,554 head in 1988. This past summer, the U.S. Department of Agriculture authorized credit guarantees for sales to Mexico. Because of these credit programs, large numbers of cattle, sheep, hogs, and other live animals, as well as beef, have recently been exported to Mexico.

Total cattle exports for 1988 are forecast to reach 195,000 head, up 44 percent. Unless additional export guarantees are extended for 1989, exports of cattle are forecast to decline to 125,000 head.

Cattle Imports Increase

U.S. imports of cattle for the first 9 months of 1988 totaled 1 million head, up 23 percent from last year. Imports from Mexico started out strong, but were banned this summer by the Mexican Government. As Mexican cattle exports stopped, imports to the United States from Canada increased. U.S. imports of Canadian cattle during January-August were up 56 percent over last year to 290,000 head. Imports from Mexico during the same period were up 14 percent to 732,000 head. The Mexican Government recently abolished the cattle export quota and established an export tax for feeder cattle. The new system is scheduled to take effect in November 1988 after which, depending on the relative prices, some movement of cattle into the United States will occur. Total imports for 1988 are forecast to reach 1.4 million head, up 19 percent. Next year, imports should decline by about 4 percent, particularly if imports from Mexico remain restricted.

Sheep and Lambs

Prices for sheep and lamb tumbled this year as commercial lamb production increased 5 percent from 309 million pounds in 1987 to over 325 million pounds this year. Slaughter lamb prices fell nearly \$20 per cwt during the course of the year to average near \$62 by year's end. Continued modest expansion in sheep inventories is likely in 1989 and production could increase 3 percent to 335 million pounds.

Prospects for seasonal price strength during the Easter-Passover holidays seems likely next spring, possibly pushing prices into the upper \$60 to low \$70's. However, beyond this period, slaughter lambs should trade near \$60 for the remainder of the year. Returns above cash costs to stock ewe operators were very close to breakeven in 1988 after averaging \$24 to \$28 in 1985-87.

Further declines in net returns are expected in the coming year as production costs rise modestly and the larger expected supplies of lamb pressure prices lower. The chances for profits to turn negative is not expected to have an immediate impact on producer expansion plans, however, it could temper further increases as we cross over into the 1990's.

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1989 PORK OUTLOOK

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Overview

Pork supplies in 1989 are expected to amount to nearly 64 pounds retail weight per capita, about the same as in 1988. Commercial pork production will likely rise relative to 1988 in the first half of the year, but decline in the second half. For the year, total production may show little change from 1988. Imports of pork into the U.S. are forecast to decline slightly, but may be overshadowed by a greater decline in exports. Beginning stocks of frozen pork will likely be larger than a year earlier.

Retail pork prices may average 1 to 3 percent higher in 1989. Barrow and gilt prices could average \$42-48 per cwt, compared with 1988's average of about \$43. The greatest annual price increases will likely occur in the fourth quarter.

Macroeconomic Factors And Competing Meats

Continuation of moderate growth in the nation's economy will be generally supportive to livestock and meat prices in 1989. Such support will likely be most evident in prices of higher-quality meat items and value-added products. In the pork sector, ham and loin cuts stand to benefit most from higher incomes as consumers increase purchases of leaner, higher-priced fresh meats and "convenience" packages (e.g., pre-cooked, microwavable, or deli products). Demand for processed pork used in breakfast foods could also rise as more meals are consumed away from home.

Fed beef supplies could be considerably lower in 1989, but broiler production will likely increase. Turkey supplies may hold fairly steady. The net influence of changes in competing meat supplies on hog and pork prices in 1989 may be minimal, but the influence on prices of specific cuts of pork could be more pronounced at certain times. For example, demand for pork loins in the spring cookout season could be enhanced due to reduced availability of fed beef. On the other hand, larger poultry supplies could reduce demand for processing pork in the summer.

Hog Inventories, Returns, And Long-Term Prospects

Hog producers expanded inventories about 14 percent between mid 1986 and mid 1988 in response to positive, and historically quite favorable, returns.

The growth in inventories was stunted in mid 1988 as drought pushed feed costs substantially higher, and rising hog supplies drove hog prices lower. Returns to hog producers held below breakeven in the last several months of 1988, likely prompting a reduction in breeding herds. Thus, hog inventories may have peaked, temporarily, in 1988.

Hog production costs are expected to rise in 1989, mostly due to an increase in feed costs. Grain prices can be expected to decline in the second half of 1989 if crop conditions are normal, but average breakeven prices for hog producers could be at least \$5 per cwt higher than in 1988. Since hog prices are expected to rise only slightly on average, returns to hog producers will likely decline. Returns over all costs (including replacement costs) could be negative through most of the year. Consequently, breeding inventories could continue to decline in the first half of 1989.

From a cyclical perspective, however, it is unlikely that a major herd liquidation has begun. Liquidation in 1988 may have been concentrated among smaller producers, who generally have higher production costs. Larger producers, whose output tends to be more stable, may have maintained existing herds. Though its impact is yet unknown, the Drought Relief Act of 1988 enabled some producers to purchase feed at below-market prices, offsetting some of the increase in feed costs. And while returns over all costs could average below breakeven in 1989, returns over cash expenses will likely be positive, improving as the year progresses. Thus, incentives for large-scale liquidation may not develop, and hog inventories could stabilize after a relatively minor setback.

Favorable crop conditions and a stable economy in 1989 would likely result in renewed expansion of hog inventories, possibly beginning in early 1990. Pork production may thus hold fairly steady through 1990, followed eventually by an uptrend in production before a major peak in the inventory cycle is reached. Under such a scenario, hog prices could be expected to trend higher as breeding herds are enlarged, followed by a period of low prices as the expansion matures.

In any case, pork production is expected to drop below a year earlier in the fourth quarter of 1989 as a result of herd liquidation in second-half 1988. Throughout the first half of 1989, however, production will probably continue above a year earlier.

1989 Pork Production And Hog Prices

In the first quarter of 1989, commercial pork production may total about 3.9 billion pounds, up 3 percent from first-quarter 1988. Following a 4-percent increase in the June-August 1988 pig crop, commercial hog slaughter in the first quarter may rise almost 4 percent, to just over 22 million head. The quarterly slaughter projection implies that weekly kills may drop to near 1.6 million head in February, a substantial decline from the previous fall. Consequently, hog prices may show a considerable seasonal rise this winter. From the fall lows in the mid \$30's per cwt, prices could reach the mid to high \$40's at the winter peak before declining into the spring. Barrow and gilt prices at the 7 markets will likely average in the low to mid \$40's per cwt over the first quarter, down from \$45 a year earlier.

Hog slaughter in the second quarter of 1989 will be drawn largely from the September-November 1988 pig crop. Farrowing intentions for this period were up 5 percent from a year earlier. Actual farrowings in the fall of 1988 may have been slightly below indicated intentions, and the number of pigs saved per litter was probably down from the previous year as a result of reduced conception rates during the May-July breeding season. Second-quarter 1989 hog slaughter is thus projected to rise about 3 percent, to around 21.5 million head. Dressed weights may be lighter on the average, resulting in a 2-percent rise in pork production. Barrow and gilt prices may average in the mid to high \$40's per cwt, compared with \$46 in second-quarter 1988. Smaller beef supplies could lend their most significant support to fresh pork prices during the second quarter, partially offsetting the increase in pork production.

Hog prices may be close to 1988 levels through most of the summer, but rise above a year earlier by September. The third-quarter 1989 average price is forecast in the mid to high \$40's per cwt, up from \$44 in 1988. Third-quarter commercial pork production may be about the same as the previous year. Cold storage stocks, which grew at an above-average pace late in 1988, could once again add significantly to total pork supplies in the third quarter if accumulation remains high through the spring.

Hog producers may have begun to reduce breedings in the fall of 1988 in response to negative returns, which could result in a year-over-year decline in the spring 1989 pig crop. Accordingly, fourth-quarter 1989 hog slaughter and pork production are expected to decline 3-4 percent relative to a year earlier. The seasonal rise in hog slaughter from summer to fall could be smaller than in 1988, causing a smaller seasonal decline in hog prices. Since it typically begins in September, a smaller seasonal price decline would tend to raise both third and fourth-quarter average prices of barrows and gilts. Reduced hog marketings in the fourth quarter may also narrow the spread between hog prices and carcass cutout values relative to a the previous year. Over the final quarter, average barrow and gilt prices may only slip to the mid \$40's per cwt.

Foreign Trade

The deficit in the balance of pork trade is expected to widen moderately in 1989, adding slightly to domestic pork supplies. Imports of pork into the U.S., after rising sharply in the early 1980's, have held fairly steady in the last few years. A slight decline is likely in 1989, largely due to the weakening value of the U.S. dollar in foreign exchange markets. While little or no change in imports from either Denmark or Eastern Europe is anticipated, product imports from Canada could be reduced. To some extent, however, imports of pork from Canada could be displaced by imports of live hogs.

Live hog imports are forecast to increase in 1989, for the second consecutive year. An approximate 50-percent cut in the countervailing duty deposit rate on hogs crossing the border from Canada is likely to encourage live hog imports, partly at the expense of dressed pork imports. Even so, the forecast for around 700,000 head in 1989 is well below the numbers imported prior to the imposition of the countervailing duty.

U.S. pork exports rose sharply in 1988, with most of the increase going to Japan and Mexico. The U.S. share of the Japanese pork market increased largely because shipments from Taiwan, Japan's primary supplier, were found to contain sulfamethazine residues in excess of Japanese standards. Taiwan voluntarily suspended pork exports to Japan in the spring of 1988, but shipments gradually resumed as the sulfamethazine problems were controlled. Taiwan is expected to recapture its traditional share of the Japanese market in 1989, detracting from U.S. market share. Consequently, U.S. pork exports are forecast to decline in 1989.

Cold Storage Stocks

With the onset of the drought in 1988, deferred futures prices rose to substantial premiums over spot cash prices. These premiums persisted through the fall of 1988, encouraging storage of pork -- primarily pork bellies -- for later consumption. Accumulation of freezer stocks was above normal in late 1988, and stocks on January 1, 1989 will be larger than a year earlier. These stocks are typically drawn down over the summer. If accumulation continues rapidly through the spring, cold storage stocks could add significantly to pork supplies, and apply downward pressure to prices, in the third quarter of 1989.

Retail Pork Prices

Retail pork prices are expected to increase in 1989 as the year progresses, rising from an early average around \$1.84 per pound to above \$1.90 in the fourth quarter. As with hog prices, the largest year-to-year increases are likely to occur in the fourth quarter. For all of 1989, retail pork prices are projected to rise 1 to 3 percent from 1988, but remain below the record levels established in 1987.

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OUTLOOK FOR POULTRY AND EGGS

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Broiler and turkey production are forecast to continue rising in 1989, following positive net returns during 1988 and expectations of positive net returns in 1989. Egg production is expected to continue declining in 1989 as producers continue to adjust to weakening demand and negative net returns which have occurred for much of the past two years. Broiler prices are expected to decline slightly while turkey and table egg prices are expected to rise. U.S. poultry and egg exports in 1989 are expected to fall below 1988 levels.

Factors Affecting Demand and Supply

General economy

The general economy is expected to continue growing in 1989, albeit more slowly than in 1988. The current expansion will enter its seventh year in 1989. Growth in incomes will provide some support for meat purchases in 1989. With larger incomes, consumers will be able to purchase more food from restaurants and fast food establishments, major growth areas for value-added poultry products in recent years.

However, continued concern over persistent deficit spending and the length of the current economic expansion may begin to cloud investment expectations. Interest rates are expected to rise slightly in 1989. Increased capital costs will likely dampen investment in poultry processing plants and growout facilities. Changes in the tax codes involving special purpose buildings could also reduce incentives for expanding investment.

Production costs higher

Production costs for all poultry and egg producers are expected to be considerably higher in first-half 1989 as a direct result of the 1988 drought. Corn prices are expected to average considerably higher, until the 1989 crop becomes more certain. The 1988 U.S. corn crop is estimated to be 4.67 billion bushels, about 34 percent smaller than the 1987 crop. Combined with a projected 34 percent lower U.S. ending stock of 1.45 billion bushels in 1988/89 and lower world production, corn prices are expected to average

\$2.40-\$2.80 per bushel, about 34 percent above year earlier. This price rise follows a 30 percent increase in 1987/88 from 1986/87.

Soybean meal prices are expected to rise about 15 percent from a year earlier in 1988/89, averaging \$235-275 per ton. This increase follows a 36 percent rise in 1987/88. The smaller increase in soybean meal prices compared with the increase in corn prices results in part because the 1988/89 U.S. soybean crop was not as affected by the drought as corn was. Soybean production is estimated to fall only 21 percent from the previous crop. Secondly, spring harvests in the southern hemisphere may be able to partially offset U.S. production decreases.

Corn and soybean meal prices are expected to decline in second-half 1989 under normal weather conditions. The U.S. is yet to have back-to-back droughts in the major feed growing regions. However, that does not mean a back-to-back drought could not occur.

Supplies of competing meats

Decreases in domestic supplies of high value beef as well as ground meat, direct competitors with chicken, could provide support for broiler prices in 1989. Following 1988's record per capita disappearance of about 220 pounds (retail basis) of red meat and poultry, disappearance is expected to fall around 3 pounds per person in 1989. Red meat disappearance is forecast to decline nearly 4 percent per person with the drop coming from beef. Fed cattle as well as nonfed cattle slaughter are expected to decline. Reduced feeder cattle supplies and the retention of some heifers for herd rebuilding will contribute to less cattle feeding in 1989. Per capita pork disappearance in 1989 is expected to be about the same as in 1988. Year-over-year increases are likely in the first half of the year but declines are expected late in the year.

Broilers

Production to increase

Broiler production is forecast to rise another 3-5 percent in 1989 following positive net returns since second-quarter 1988. Broiler production in 1988 will likely rise 4 percent from 1987 to more than 16 billion pounds. Expectations of sharply higher feed costs in early 1989 from a year earlier will probably blunt the industry's tendency to escalate the size of production increases following periods of good net returns. Following the summer of 1986 when monthly net returns reached as high as 24 cents per pound, producers expanded production 9 percent in 1987. However, current feed costs are almost 30 percent higher than they were in 1986 and expectations are for feed costs to remain high in first-half 1989. In 1986, forecasts called for 1987 feed costs to decrease.

While broiler production is forecast to increase 4 percent, most evidence suggests that the largest portion of the annual increase will come during the second half of 1989. Broiler eggs in incubators during November 1988 and chick placements for slaughter in early 1989 indicate production will increase 2-3 percent at the beginning of the year. The size of the hatching egg flock,

which is comprised largely of broiler egg-laying type hens, indicates similar increases. The broiler hatchery supply flock, an estimate of broiler egg laying type hens in the future, shows a similar trend. A broiler hen is in prime production between 7 and 14 months of age. Pullets placed in October will reach laying age by May 1989. By summing the number of pullets placed in the broiler hatchery supply flock that will be 7-14 months of age in May 1989, a rough estimate of the hatching egg flock can be obtained. This estimate is at best a directional indicator of production because broiler integrators can molt hens if they need a near term increase, or they can dispose of the eggs if a short-term decrease is warranted. Recent placements to hatchery supply flock indicated that broiler producers intend to expand the flock during 1989.

While broiler production continues to increase, broiler liveweights have increased only fractionally from a year earlier during the first ten months of 1988. The slight increase might indicate a temporary end to the increasing bird sizes. Complaints by retailers of too much fat deposition and birds being heavier than desired perhaps has slowed liveweight increases.

Prices to decline in 1989

The annual wholesale broiler price in 1989 is not likely to average above 1988. Broiler prices rose sharply during the spring and summer of 1988, after being somewhat weak early in the year. Prices during fourth-quarter 1988 remain at relatively high levels compared with a year earlier. If the pattern continues, first-quarter 1989 wholesale broiler prices will probably average 50-56 cents per pound, above the 45 cents during same period last year.

Second- and third-quarter broiler prices in 1989 are expected to average 53-59 cents per pound compared with 56 and 66 cents during 1988. Summer 1989 prices probably will not rise to the levels of 1988, unless an extraordinary string of events occur such as those that transpired this past summer which resulted in higher prices and tighter supplies. Retailers and restaurateurs featured chicken through most of the summer in 1988. Also, broiler producers placed only 2-3 percent more broilers for summer slaughter following a period of negative returns during late 1987 and early 1988 and hot weather slowed the rates of gain. Similar events occurred in 1986. Continued high beef prices during summer 1989 should support summer prices. Prices are expected to decline in the fourth quarter to 47-53 cents as seasonal barbecuing and summer vacations end.

Average retail frying chicken prices will probably decline in 1989 from 1988. The tight supplies which occurred along with the heavy chicken featuring during summer 1988 are unlikely to occur in 1989 as producers are expected to be increasing the expansion rate by summer 1989.

Bright spots for further investment

Further investment opportunities in broiler industry deboning capacity appear to be available. The ratio of boneless, skinless chicken breast price when compared with whole fryer prices has been rising since 1978 while ratios comparing cutup chicken parts prices in the Northeast with the 12-city wholesale composite price have not changed over time. Capacity constraints

evidently continue to require some bidding for boneless breast meat to ration the quantities demanded.

World production

World production of broilers is expected to increase around 4 percent in 1989 following nearly a 3-percent rise in 1988. The United States, European Community (EC), Brazil, Soviet Union and Japan are expected to be the largest producers in 1989 with 34, 19, 9, 8, and 6 percent of forecast output, respectively.

Exports to decline

U.S. broiler exports are expected to decline in 1989 to around 650-680 million pounds, about 7 percent below the 726 million pounds expected in 1988. This level of exports would represent about 4 percent of U.S. production in 1989. Exports in 1988 are expected to fall 3-5 percent from the record 752 million pounds in 1987. The continued decline will result because of higher subsidy levels by the EC, and relatively high prices of U.S. broilers in 1988 compared with 1987, despite a weakening dollar on international currency exchange markets. The export refund rate for the EC was 45 percent above a year ago at \$610 per metric ton. U.S. broiler exports are expected to fall in 1989, unless the U.S. increases its Export Enhancement Program (EEP) bonuses, or the EC reduces its subsidy. Stronger competition by Thailand and Brazil may also limit U.S. broiler exports in 1989.

Japan and Hong Kong are expected to continue to be strong export markets for U.S. broiler meat in 1989. However, Mexico, one of the larger importers in 1988, could end programs which eases trade restrictions and import tariffs for poultry and eggs. Mexico has used this program to increase consumer supplies of poultry meat and eggs in an effort to fight inflation.

Looking past 1989

Production is likely to continue expanding in the future as broiler integrators continue using marketing themes which depict broiler meat as healthy and speedy to prepare. As two-income households increase, ease of preparation will continue to have added importance in at-home cooking. Increasing numbers of two-income households will also likely increase away from home food purchases such as fast food. Fast food appears to have been one of the major areas of increased consumption for poultry products. The average fryer price per pound also tends to be absolutely less expensive than most cuts of beef and this will help support continued expansion of broiler consumption. However, as these new markets become saturated, growth in broiler production will likely slow, until new market channels are found.

The ability of the broiler industry to expand broiler production will be predicated upon finding more cost efficiencies because chicken prices will likely continue to fall over time in order to clear the market. The increasing efficiencies will likely come from mergers, where some of upper and mid-level marketing and distribution functions will be streamlined, spreading overhead and fixed costs. Efficiencies will also likely come from integrators

retaining growout facilities with the best management. Biotechnology may provide some cost of gain efficiencies.

Turkeys

Turkey production to rise

Turkey producers are expected to expand output 2-4 percent in 1989 following positive net returns in the third and fourth quarters of 1988. Net returns are expected to be positive in the third and fourth quarters of 1989, although producers will experience negative net returns in the first two quarters of 1989 due to high feed costs associated with the drought.

Production in 1988 is expected to increase approximately 6 percent following a 17 percent increase in 1987. Output rose 18 percent in first-half 1988, but decreased 3 percent in the third quarter. Another 3 percent decline is expected in fourth-quarter 1988. Production is expected to begin increasing again early in 1989, but the largest increases are expected to come in the second half. Increases in turkey poults placed during September and October imply larger production in early 1989.

Cold storage stocks to follow past patterns

Public cold storage stocks in 1989 are expected to follow a traditional buildup of stocks for consumption during the fourth quarter. Beginning stocks for 1989 are expected to be about 175 million pounds, similar to 1986, but 38 percent below the 1988 beginning stock. By the beginning of fourth-quarter 1989, stocks will have built but only to approximately 550 million pounds, about 6 percent below 1988. Turkey stock-to-use ratios for fourth-quarter 1989 will remain near 1988 levels. The similar low stock-to-use ratio will lend some support to turkey prices but not enough to raise prices above fourth-quarter 1988 levels.

Turkey prices to rise

Fourth-quarter 1988 prices are likely to average in the mid to upper 70 cents per pound compared with 61 cents a year earlier. A lower stock-to-usage ratio for fourth quarter 1988, .39 versus .44 for last year, might explain a portion of the expected upward price movement from 1987. However, fourth-quarter prices are not expected to rise considerably from the third-quarter 1988, perhaps because retailers entered the market early expecting tighter turkey supplies for Thanksgiving and because there are plentiful supplies of ham for the rest of the holiday season.

Wholesale hen turkey prices in the East are expected to rise in 1989 to 63-69 cents per pound, up from the 61-62 cents projected for 1988. Turkey prices are expected to fall seasonally in first-quarter 1989 to 59-65 cents per pound, but remain substantially above the 49 cents of first-quarter 1988. The second-quarter 1989 price will likely be 55-61 cents, above the 51 cents in 1988. However, second-half 1989 prices are anticipated to be below year-earlier levels because year-to-year increases in turkey production will be larger in the second half than the first.

Retail turkey prices for 1989 are expected to rise along with the wholesale prices. But 1989 Thanksgiving specials will likely be more attractive as the larger increases in production are expected to take place during the second half.

Per capita consumption becoming more evenly distributed

Annual turkey per capita disappearance in 1989 is expected to continue its long-term trend towards more even distribution of consumption throughout the year. Although expected fourth-quarter disappearance, near 6 pounds, still accounts for nearly 36 percent of the annual total, the proportion has been decreasing. For example, fourth-quarter disappearance in 1978 accounted for 44 percent of the total. The first three quarters will likely comprise 20, 22, and 22 percent of the total disappearance in 1989 compared with the 11 year earlier distribution of 14, 19, and 24 percent in each quarter, respectively. Total per capita disappearance in 1989 will likely be a little below the approximate 16.7 pounds in 1988.

World production

World production of turkey is expected to rise approximately 2 percent in 1989 following an anticipated 4 percent increase in 1988. The U.S. is expected to continue as the leading producer of turkey followed by the EC, Canada, and the USSR.

Exports to decline

U.S. turkey exports are expected to fall 18-22 percent in 1989 after growing an expected 46-52 percent in 1988 from 1987's 33 million pounds. U.S. exports are expected to be less than 1 percent of U.S. production in 1989. Leading importers in 1988 were Egypt, West Germany, and Mexico. Egypt, which is facing meat shortages, has increased imports of turkey in 1988 11-fold from 1987. Mexico is using turkey as well as broiler meat in an attempt to reduce inflation. West Germany recently reclassified seasoned turkey into a higher EC duty category, temporarily pricing U.S. product out of the market. Expected higher U.S. turkey prices combined with uncertainties in major U.S. markets clouds the outlook for U.S. turkey exports in 1989.

Looking past 1989

Turkey production is likely to continue increasing beyond 1989 for many of the same reasons that broiler production is expected to continue expanding. Turkey producers continue to develop new products for consumers, emphasizing speed of preparation and the low-fat content of their product. There also are more market outlets for turkey producers to exploit because turkey is not yet a common item on most restaurant menus except as a special during the fall holiday season. In addition, there appears to be some room yet to increase feed efficiency and reduce the number of days turkeys spend on feed.

Eggs

Production to decrease

Egg production is expected to decline about 2 percent in 1989 after decreasing 1 percent in 1988. The continued decline follows more than a year and a half of negative net returns. Egg producers were facing negative returns for most of 1987 and began reducing production in mid 1988. The 1988 drought imposed further feed cost increases and despite higher egg prices, negative net returns are expected to continue after a short respite in third quarter 1988. Net returns are expected to remain negative during the first half of 1989 because of higher feed costs and seasonally lower prices. With egg prices rebounding in second-half 1989 and feed costs falling after an expected near normal grain crop, net returns could turn positive.

This trend of negative net returns have been reflected in table-egg producers' plans. The table-egg flock is currently down 3 percent from a year earlier. Egg-type chick hatch indicates fairly strong pessimism by egg producers as the hatch has been below year-earlier numbers since December 1987. Some recent monthly hatch numbers have been down more than 20 percent from a year earlier, with year-to-date hatch numbers being 16 percent below a year earlier. With relatively low chick hatch numbers, producers will have considerable difficulty maintaining the flock even through molting if prices rise unexpectedly. As the percent of flock having completed a molt continues to rise to maintain the flock at 2 to 3 percent below year-earlier levels, the rate of lay is also expected to suffer. Egg production is expected to continue declining during all quarters of 1989, but will be only 1 percent below fourth-quarter 1988 levels by the end of 1989.

Egg prices to rise

Egg prices in 1989 are expected to average 65-71 cents per dozen, up about 6 cents from 1988. First-quarter prices, at 59-65 cents, are expected to be above the 55 cents a year earlier as production continues to decrease in 1989. With continued lower production, prices are expected to average 57-63 cents in the second-quarter, above the 53 cents recorded in the same period of 1988. Prices in 1989 are expected to begin rising seasonally in the second half reaching 69-75 cents in the third quarter and 74-80 cents in the fourth quarter as the holiday baking season begins. These prices compare with 73 cents and 64-65 cents in the same quarters of 1988.

Retail egg prices will likely rise in 1989 as there will be less eggs available on a per capita basis. Production in 1989 is expected to decline significantly in response to negative returns causing per capita disappearance to drop faster than trend. Retail prices are expected to be at the highest level since 1984.

Per capita consumption likely to continue falling

Per capita consumption of eggs is expected to continue its downward trend in 1989 as it has in 1988. In 1987, per capita consumption was near 249 eggs, similar to the 1986 levels. Because production is responding to declining prices in late 1987 and early 1988, per capita consumption is expected to fall

to 242 eggs in 1988 and 235 in 1989. The continued decline in per capita consumption is perhaps symptomatic of the changing lifestyles of the American consumer. Egg producers have yet to market a product which will compete with easy to fix breakfast items such as sweet rolls and or instant cereals. The family may only sit down for breakfast on weekends while weekday breakfasts are eaten on the run, if at all. In addition changing lifestyles, health concerns associated with the egg may be impacting egg consumption. At the same time, egg producers have spent little money on changing the image of eggs in consumers' minds or convincing consumers that eggs aren't just for breakfast anymore. Recent developments which may be positive for the egg industry might include introduction of low cholesterol eggs and a number of processed egg products such as fat substitutes which are nearly non-caloric.

World production

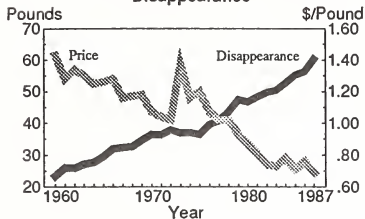
World egg production is likely to rise 2 percent in 1989 while production in the U.S. continues to fall. Production in the EC will also likely decline slightly in 1989. Production in China, the world's largest egg producing country, will probably increase 8 percent. The Soviet Union, the second largest egg producer, will likely boost production 2 percent in 1989. The egg is a very low cost source of protein. The EC, U.S., and Japan will likely continue to be the next largest egg producing regions in 1989.

Exports to decline

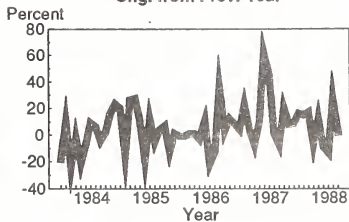
Egg exports from the U.S. are anticipated to fall about 14-18 percent in 1989, to near 110 million dozen eggs. The fall in 1989 exports follows an expected 20-25 percent rise in 1988. U.S. exports are expected to be about 2 percent of U.S. production in 1989. The higher price of U.S. eggs in 1989 will contribute to the decline in exports. Uncertainties in the Export Enhancement Program (EEP) as well as in export credit programs obscure the egg export picture for 1989. These programs can have a large impact on egg exports.

Current inflation control programs are expected to make Mexico the largest table egg importer of U.S. eggs in 1988 surpassing Hong Kong and Iraq. How long Mexico will continue the program of reducing trade restrictions on poultry and eggs leaves considerable uncertainty in the forecast for egg exports in 1989. Japan is the largest U.S. total egg importer and imports mainly egg products. Japan is expected to continue as the largest U.S. customer in 1989 as the U.S. competitive position in egg products has strengthened.

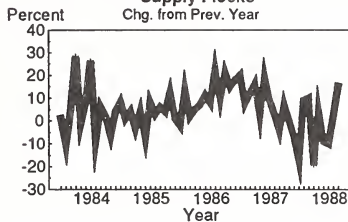
Broilers: Real Price vs. Per Capita Disappearance



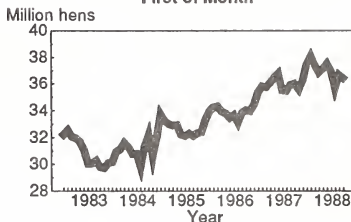
Heavy-type Hen Slaughter Chg. from Prev. Year



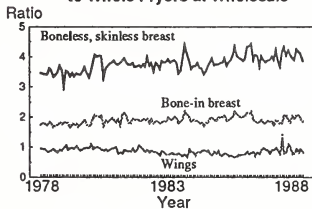
Broiler Pullets Placed in Hatchery Supply Flocks Chg. from Prev. Year



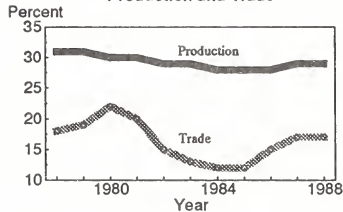
U.S. Hatching Egg Flock First of Month



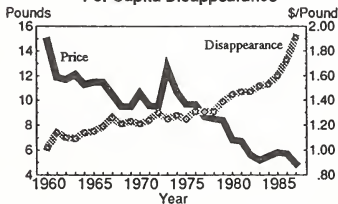
Ratio of the Price of Chicken Parts to Whole Fryers at Wholesale



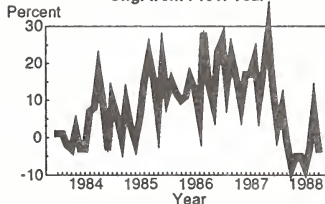
U.S. Share of World Poultry Production and Trade



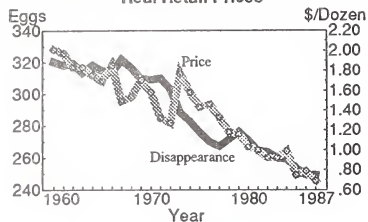
Turkeys: Real Retail Prices vs. Per Capita Disappearance



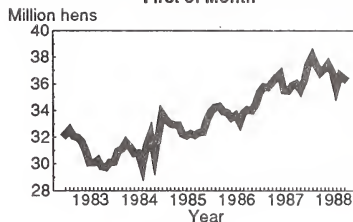
Turkey Poult Placed Chg. from Prev. Year



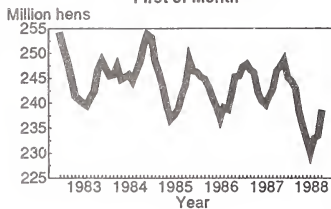
**Eggs: Per Capita Disappearance vs
Real Retail Prices**



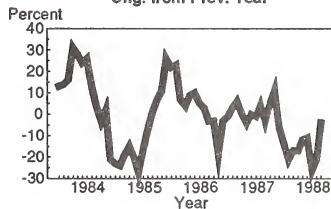
**U.S. Hatching Egg Flock
First of Month**



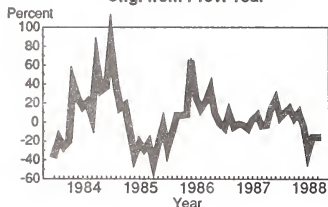
**U.S. Table Egg Flock
First of Month**



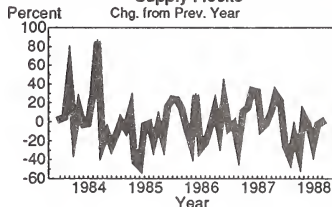
**U.S. Egg-type Chicks Hatched
Chg. from Prev. Year**



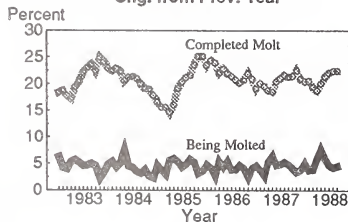
**Light-type Hen Slaughter
Chg. from Prev. Year**



**Egg-type Pullets Placed in Hatchery
Supply Flocks
Chg. from Prev. Year**



**Egg Laying Flock in Molt
Chg. from Prev. Year**



ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

United States Department of Agriculture
Washington, D.C.



Outlook '89, Session #21

For Release: Wednesday, November 30, 1988

CATTLE OUTLOOK

Tommy Beall
Director, Market Research
Cattle-Fax

The cattle outlook for 1989 will remain positive. Beef supplies will decline. Demand growth should remain positive. The result should be higher average fed cattle and beef prices.

Cattle numbers and beef supplies will be more dominant market factors during the next two years. Total cattle numbers on January 1, 1989 should be between 97 and 97.5 million head -- 1.5 to 2.0 million less than a year earlier and 18 million head below the recent high in 1982. The largest decline will be in feeder cattle and calf supplies. Cattle-on-feed numbers are expected to be down about 5 percent. The largest decline in cattle slaughter and total beef production during 1989 will be due to declining fed cattle supplies. Per capita beef consumption is projected to decline by 4 to 6 pounds in 1989, irrespective of demand changes, due to declining beef production. Seasonal beef supply changes during 1989 are expected to be larger and more volatile than in recent years.

Increased consumer spending for beef during 1988 was responsible for an estimated \$5/cwt. increase in the average value of fed cattle. Beef supplies were close to even with the previous year and retail prices averaged 5 percent higher. Beef demand is expected to remain positive in 1989, but the growth trend could slow compared to 1988 as competitive meat supplies increase further and economic growth slows.

Costs are the largest uncertainty for 1989 and could have the largest impact on longer-term trends in the industry. The 1988 drought eliminated excess feed grain supplies and assured increased feed costs through 1989. Smaller beef supplies through 1990 will be an important offsetting plus and "shock absorber" for the cattle industry. Nonetheless, sustained profitability in the cow-calf industry and future growth for the industry in total will largely depend on more normal moisture the next two years and a more stable feed grain situation.

The most important change of the last two years has been higher calf prices and positive returns in the cow calf industry. Barring a repeat of the 1988 drought, that trend should continue through 1989 and 1990. Feedlot, stocker, and growing operations will face a more marginal situation. Breakeven fed cattle prices during the first half of 1989 will be about \$75/cwt. on the average. Hence, higher prices will not assure profitability for feedlots. The current over-capacity in the industry will result in narrow margins, increased competition, less retained ownership, increased attrition from the industry, and increased concentration.

ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

United States Department of Agriculture
Washington, D.C.



Outlook '89, Session #21

For Release: Wed., Nov. 30, 1989

HOG OUTLOOK FOR 1989

Bob Brown
Director of Commodity Price Research
Wilson Foods Corporation

SHORT TERM OUTLOOK

The September Hogs and Pigs Report showed total 10 state inventories up 4.6% from the previous year (Chart 1). This was the seventh consecutive year-over-year increase in quarterly inventories and the highest September number since 1983. The highlight of this inventory report was under 60# market hogs as a percent of over 60# market hogs. At 62%, it was the lowest percentage in the last ten years suggesting to me a sharper than normal seasonal decline in hog slaughter probably beginning in November sometime. This expectation was also supported somewhat by June-August as a percent of March-May pig crop. At 89.5% this was slightly less than the 10 year average of 89.9% but substantially below the last year's 94% and 1986's 95.3%. So this report set my expectations of the pattern of hog slaughter from October through January. That is, I expected slaughter to be heavy, but, on a seasonally adjusted basis, declining from September on.

Now for the December Hogs and Pigs Report, I expect total 10 State inventories to be about 44 million head, up 2.7% from a year ago (Chart 2). This would be the 8th consecutive increase over the previous year in quarterly inventories. This number would also be 97.6% of the September number compared to the last 10 year's average of December being 99.6% of the September number. In those years since 1976 in which the change from September to December inventories was below average, weekly cash prices rose an average of 24% from the Oct.-Dec. low to the following Jan.-Mar. high. This compares to an average of only a 10% rise in weekly cash hog prices from low to high in years in which the Sep. to Dec. change is above average.

Therefore, given my expectations of a sharper than normal decline in slaughter from here and the extremely wide margin structure from the retail to the farm level, I am looking

CHART 1
SEPTEMBER 1 TOTAL HOG INVENTORY
TEN STATES
THOUSAND HEAD

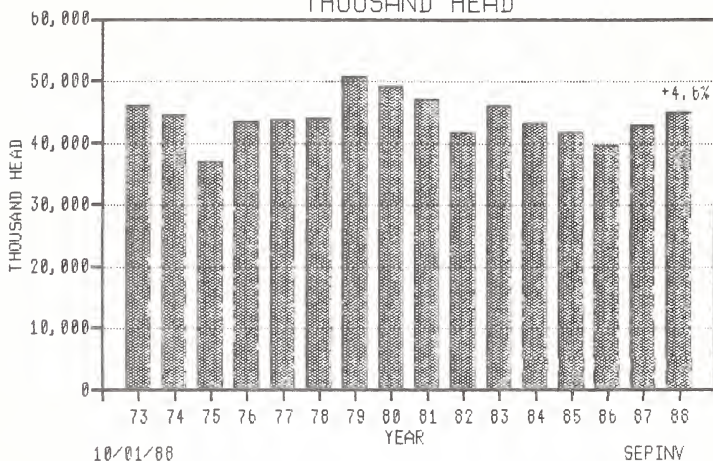
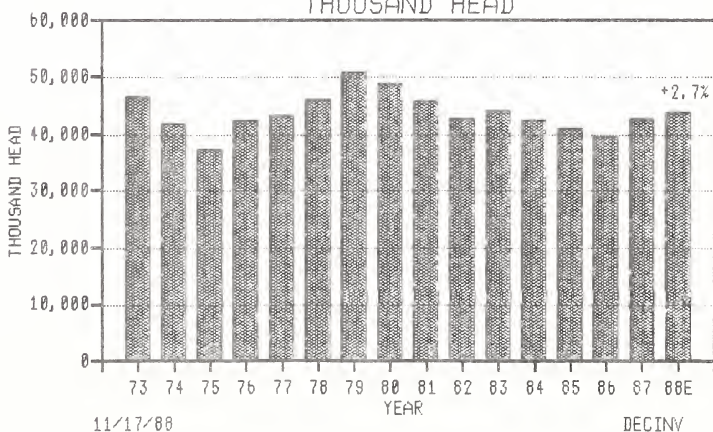


CHART 2
DECEMBER 1 TOTAL HOG INVENTORY
WITH 1988 ESTIMATED
TEN STATES
THOUSAND HEAD



for an extremely rapid increase in cash hog prices from now into January-February 1989. The increase in prices on a weekly average basis will probably be on the order of \$10/cwt., taking hog prices from \$38 to \$48 in the next 10 weeks. Enough of my short term outlook. We are here to talk about the whole year of 1989.

1989 SUPPLY OUTLOOK

Actual selling prices dropped below estimated breakeven selling prices in September 1988 for the first time in two and a half years. (Iowa State Farrow-to-Finish Series, Chart 3). Losses in November will exceed \$10/cwt., the worst since the fall of 1983. Currently, prospects appear dim for any profits in the next 6 months.

I have a profit response model that attempts to measure the percentage changes in hog slaughter associated with changes in profitability and the replacement rate in the breeding herd. Chart 4 shows the track record of this model and its estimates for the quarters of Oct-Dec 1988 through July-Sep 1989. The models says:

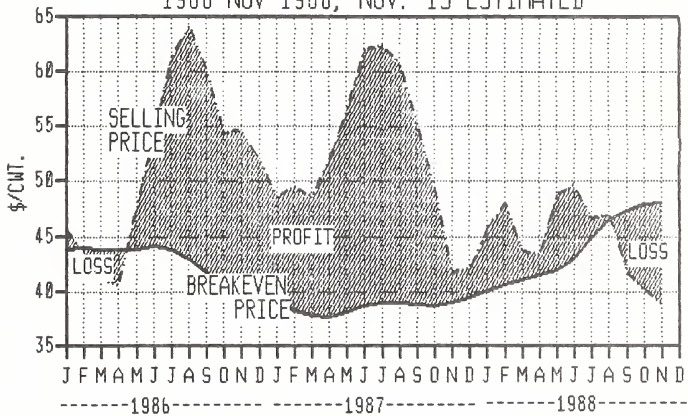
Quarter	% Change in Slaughter
Oct-Dec 88	+4%
Jan-Mar 89	-2%
Apr-Jun 89	-3%
Jly-Sep 89	-8%

But who has ever heard of using forecasts directly from a model. However, using the model as guidance and judgement based on the recent pig crops and other post-drought years, I formulated my slaughter forecasts for 1989. They appear in Chart 5 and Table 1. I expect hog slaughter to remain modestly above last year's levels until the middle of 1989. Slaughter will probably first fall below the previous year in July and by September will be running consistently below the 1988 levels. Table 1 also shows the buildup for my pork disappearance estimates. I use disappearance as my primary supply variable. My 1989 forecasts with percent changes from the previous year are:

Quarter	Comm'l Slaughter	Total Disapp.
=====	=====	=====
1989	million head	million lbs.
Jan-Mar	21.9 +3%	4,133 +3%
Apr-Jun	21.7 +4%	4,111 +4%
Jly-Sep	20.5 -4%	4,040 -2%
Oct-Dec	21.8 -9%	4,139 -8%

Now, some of you know me but some of you have never seen me

CHART 3
ESTIMATED BREAK-EVEN PRICES AND SELLING PRICES
FOR FARROW-TO-FINISH HOG OPERATIONS IN IOWA
1986-NOV 1988, NOV. IS ESTIMATED



SOURCE: IOWA STATE UNIVERSITY

HOGPROF3

CHART 4
ACTUAL COMMERCIAL HOG SLAUGHTER AS A % OF A YEAR AGO
VERSUS PREDICTIONS FROM PROFIT RESPONSE MODEL
BY QUARTERS, 1982-1989

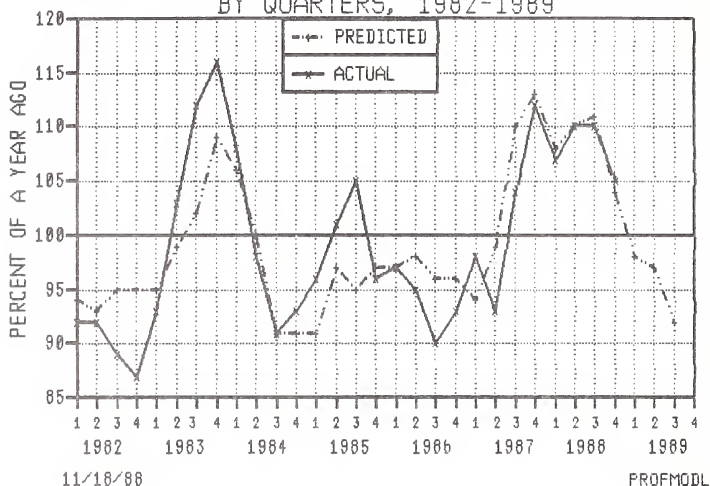


CHART 5
U.S. COMMERCIAL HOG SLAUGHTER
BY CALENDAR QUARTERS
1984-1989

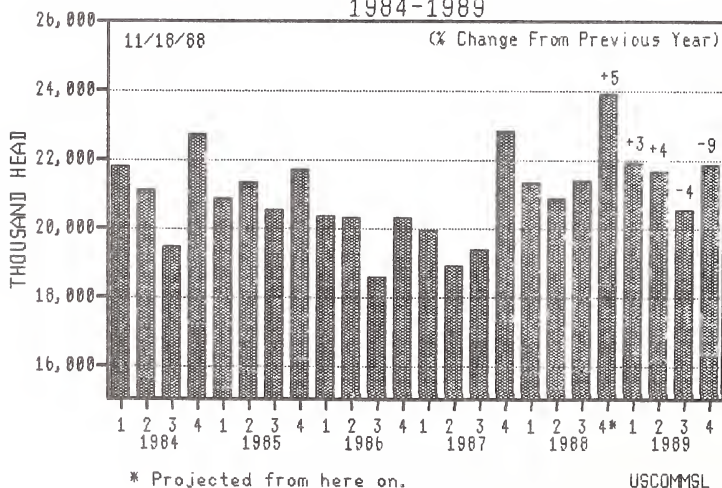


TABLE 1
U.S. COMMERCIAL HOG SLAUGHTER
THOUSAND HEAD

CALENDAR QUARTER	1985	1986	1987	1988	% CHANGE	1989	% CHANGE
JAN-MAR	20,871	20,379	19,940	21,339	7%	21,908	3%
APR-JUN	21,343	20,316	18,911	20,869	10%	21,690	4%
JLY-SEP	20,556	18,573	19,396	21,365	10%	20,542	-4%
OCT-DEC	21,721	20,330	22,834	23,908 *	5%	21,846	-9%
TOTAL	84,491	79,598	81,081	87,481	8%	85,986	-2%

COMMERCIAL PORK DISAPPEARANCE
CARCASS WEIGHT, MILLION POUNDS

=====								
CALENDAR YEAR & QUARTER	BEG. STOCKS	IMPORTS	COMML. PROD.		EXPORTS	ENDING STKS	TOTAL DISAPP.	
=====								
1987 1	197	293	3,540	-1%	19	223	3,788	-1%
2	223	296	3,327	-7%	27	189	3,630	-4%
3	189	299	3,384	5%	21	186	3,665	3%
4	186	310	4,061	12%	42	280	4,235	9%
	=====	=====	=====		=====	=====	=====	
ANNUAL	197	1,198	14,312	2%	109	280	15,318	2%
1988 1	280	310	3,787	7%	25	346	4,006	6%
2	346	287	3,726	12%	60	363	3,936	8%
3 *	363	310	3,773	11%	30	289	4,127	13%
4	289	320	4,232	4%	45	300	4,496	6%
	=====	=====	=====		=====	=====	=====	
ANNUAL	280	1,227	15,518	8%	160	300	16,565	8%
1989 1	300	310	3,878	2%	30	325	4,133	3%
2	325	320	3,861	4%	30	365	4,111	4%
3	365	340	3,615	-4%	20	260	4,040	-2%
4	260	330	3,889	-8%	40	300	4,139	-8%
	=====	=====	=====		=====	=====	=====	
ANNUAL	300	1,300	15,242	-2%	120	300	16,422	-1%

*ESTIMATED FROM HERE ON
10/31/88

before in your life. Even if you did know me most of you would have no way of knowing how good a forecaster I am. So I'm going to show you one indicator of the quality of my forecasts.

AVERAGE OF THE ABSOLUTE VALUES OF THE PERCENT ERRORS IN QUARTERLY HOG SLAUGHTER FORECASTS

FORECAST NUMBER OF QUARTERS IN ADVANCE	1	2	3	4
=====	=	=	=	=
AVERAGE ABSOLUTE ERROR				
28 OBSERVATIONS	2.4%	4.2%	5.2%	6.5%
LAST 8 OBSERVATIONS	2.6%	2.7%	3.4%	3.4%

As you can see, after 2 quarters in advance, my forecasts can start to become a little flaky. Just be aware of that before you bet the farm on my estimates.

1989 PRICE OUTLOOK

I had a real good quarterly cash hog price model once. It was a simple, 3 variable, OLS model which, over the estimation period of 1980-1987, explained over 90% of the variation in hog prices. The model was cash hog price as a function of per capita pork disappearance, the farm-to-retail spread as a percent of the retail price (call it the marketing margin share variable), and a seasonal dummy for the Oct-Dec quarter and had a standard error of under \$2.00/cwt. It worked real good until the last half of 1987 and since then has had consistently positive residuals (actual prices over forecasts) of between \$2.00 and \$6.00/cwt, the biggest ones being in the most recent 2 quarters. Looking at Chart 6, it becomes somewhat apparent what has happened to the model. Chart 6 shows the relationship between that marketing margin share variable and hog prices over the last several years. Since the last half of 1987, the marketing margin share of the retail pork price has reached and sustained levels never before seen. Theory suggests that as marketing margins widen, other things equal, cash prices declines. I (the model, too) expected hog prices to be under more pressure than has been the case in the last year. One explanation is that the demand for pork has improved in the last year and a half compared to the base period over which the model was estimated. This was a round-about way of getting to the demand issue and saying that I am back to my scatter charts for estimating future hog prices.

For 1989, I expect hog prices to increase about 3% on an annual basis compared to 1988. My forecasts by quarter for

1989 and my track record on forecasting cash hogs prices follows.

CASH HOG PRICE FORECASTS
OMAHA, U.S. 1-2 230-240# B&G
QUARTERLY, 1987-88 ACTUAL AND 1989 FORECASTS
\$/CWT.

Quarter	1987	1988	1989
=====	=====	=====	=====
Jan-Mar	\$49.28	\$46.30	\$45.00
Apr-Jun	56.18	47.20	44.00
Jly-Sep	59.37	45.30	49.00
Oct-Dec	44.66	41.00	48.00
=====	=====	=====	=====
ANNUAL AVE.	\$52.37	\$44.95	\$46.50

AVERAGE OF THE ABSOLUTE VALUES OF THE \$/CWT. ERRORS IN
QUARTERLY OMAHA CASH HOG PRICE FORECASTS

FORECAST NUMBER OF QUARTERS IN ADVANCE	1	2	3	4
=====	=	=	=	=
AVERAGE ABSOLUTE ERROR				
28 OBSERVATIONS	\$2.78	\$5.41	\$6.69	\$6.15
LAST 8 OBSERVATIONS	\$2.44	\$4.35	\$5.06	\$4.34

As you can see, forecasting prices is a little more treacherous for me than forecasting slaughter. Past one quarter in advance a \$4-5/cwt. error (about 10%) in average quarterly prices is not uncommon for me. The problem, as is obvious to those that do this for a living, is that errors in pork supply forecasts just about double in magnitude when they are used to predict prices. And unfortunately most decisions are made on the basis of price forecasts not slaughter forecasts.

LONGER TERM SUPPLY FORECASTS

From time to time I am asked to provide 3-5 year forecasts of hog slaughter and prices. Now that you have seen my track record on forecasting up to 4 quarters in advance, it becomes rather humorous to ponder the usefulness of the 3-5 year forecasts. That aside, Chart 7 shows what I currently expect hog slaughter to do through 1992. After a sharp decline in numbers in 1990, hog supplies should increase to over 85 million head again by 1992. The major assumption in this forecast is no drought over the next 3 years.

One last table to stimulate your thoughts in another

CHART 6
OMAHA CASH HOG PRICE AND TOTAL FARM-TO-RETAIL
SPREAD AS A PERCENT OF THE RETAIL PORK PRICE
BY QUARTERS, 1983-89
\$/CWT. AND %

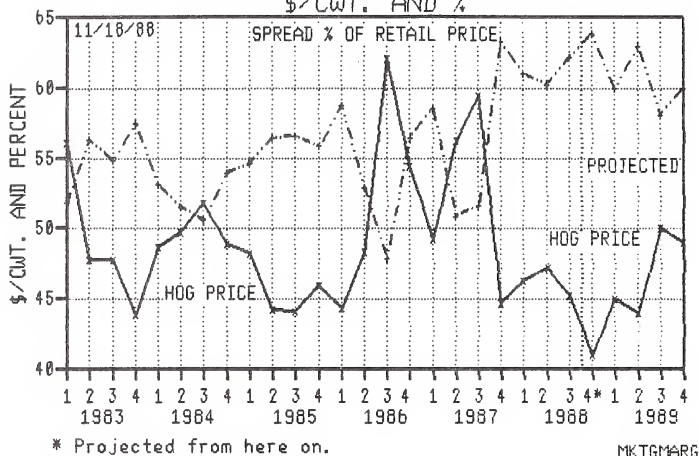
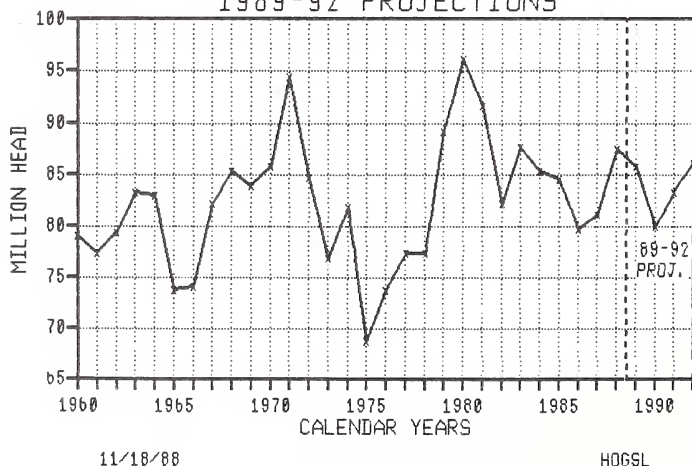


CHART 7
U.S. COMMERCIAL HOG SLAUGHTER
1960 - 1988 ACTUAL
1989-92 PROJECTIONS



direction. Table 2 shows the value of the major pork cuts as a percent of a composite price made up of those cut prices. This illustrates the dynamics of relative demand within the pork sector and is probably of most significance to those of us within the industry that cross hedge pork cuts using the hog futures. The table clearly shows the value of lean is growing relative to the value of fat. The one exception is the ribs that are mostly bones and fat.

The end.

TABLE 2

PRICES OF WHOLESALE PORK CUTS AS A % OF THE COMPOSITE WHOLESALE PRICE

=====						
5 YEAR PERIOD: 1963-67 : 1968-72 : 1973-77 : 1978-82: 1983-87: 1988EST						
=====						
-----(% OF COMPOSITE PRICE)-----						
17-20# HAMS	108%	105%	104%	103%	97%	100%
14-18# LOINS	119%	120%	116%	124%	128%	141%
14-16# BELLIES	83%	79%	87%	73%	80%	60%
4-8# PICNICS	69%	74%	70%	72%	63%	62%
4-8# BUTTS	92%	97%	94%	101%	96%	96%
3.5#&DN RIBS	114%	127%	124%	136%	153%	157%
72% PORK TRIM	99%	106%	93%	103%	92%	90%

11/18/88

ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

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POULTRY INDUSTRY OUTLOOK

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Tremendous strides have been made in the last 8 years by the poultry industries. Demand has been strong, thanks partly to blessings by health associations on broiler and turkey meats. In the last 8 years the per capita consumption of turkey meat has increased 7.5 percent per year. Per capita broiler meat consumption since 1980 has grown 4 percent per year. Egg usage, however, is another story. Losing an average of 3.8 eggs in per capita use since 1980. What will the future hold for these 3 distinctly different industries? Lets take a look.

Several things affect each of these specific industries. The strength of consumer purchasing power will be very important. If it eases lower in 1989 and '90 during the next deflationary recession which I expect to occur, the sales of premium priced, added value products could be restrained as consumers are forced to buy less expensive but high quality, tasty food products. Under such a scenario, poultry producers will still fare better than red meat producers. Discretionary consumer income is very important to demand of the hundreds of healthful broiler and turkey products now on the market.

If a deflationary recession occurs, costs of most, if not all inputs will decrease lowering the overall value of all meats. It will also cause the U.S. standard of living to slip as our adjusting economy affects the quantity of imports which have been fueling our citizens' desires for more products than most can afford. But it will help our balance of payments as we become more competitive in world markets. U.S. exports of poultry meat, in a wide assortment of products, should continue as world population growth advances. An unknown that may or may not be positive is the impact of current trade negotiations with the EEC and the Canadian Free Trade Agreement.

Each of the feather industries must market the products our diverse group of Americans want. Today we have more single or

two person households than ever before. We have the WOOFs, well off old folks, and the DINKS, double income with no kids. Each of these high income households will desire a specific type of product due to nutrition requirements and energy needs. Also a wide diversity of nationalities will need to be provided for with products that they are accustomed to. U.S. citizens vary immensely, which makes the marketplace not one but hundreds of distinct markets. So once each industry begins to market a complete meal or center of the plate item, the possibilities as well as the requirements are endless on each firm's marketing department. Going from a generic product to a quick, easy to fix, heat and eat in 10 minutes product is no easy task but one that must be taken on in today's fast paced society. This is not the time to sit back on your accomplishments and expect to stay ahead, or even up with, the ever changing demand for your goods and services. However, take time to listen to your customers, they are the ultimate consumers of your products.

EGGS

The feather industry that is suffering the most is the one that year after year loses consumer demand. Lets discuss this one first so we can move to more promising horizons.

Three major problems must be conquered by the table egg industry before it can stabilize per capita usage and maybe even turn it upward. Fear of consuming too much cholesterol. Lack of time to have the superb old fashioned breakfast. And the inability of the egg industry to produce and sell to consumers, complete egg meals that can be eaten anytime in our hectic 24 hour day.

Health related associations have hit the egg quite hard with their eat less cholesterol campaigns. There is hope though. Just recently newspaper articles have been appearing that separate the good blood cholesterol from the bad cholesterol. Once the medical associations, doctors, dietitians, etc. begin to explain to our citizens that there is a tremendous difference between low-density lipoprotein (LDL) cholesterol, the type that clogs blood vessels and the high-density lipoprotein (HDL) cholesterol, the one that helps flush out harmful LDL cholesterol from the blood. Just maybe, the dietary cholesterol in eggs won't be faced with their current demon. Several breakthroughs are near. For example Professor Marian Childs, a University of Washington expert on fat metabolism, has discovered that eating oysters, clams, and crabs can lower your LDL cholesterol by about 9 percent. Those items are currently on the high cholesterol do not eat list.

Also many egg producers are experimenting with ways to lower total cholesterol in their eggs. Some claim to have reduced the

cholesterol content by 55 percent. Someday, we believe the table egg will be 90 percent free of all types of cholesterol and once again a mainstay in the consumer diet due to its versatility in use with other foods. The American Egg Board has recently released a cookbook with just egg related recipes. It contains many microwavable egg dishes. It also suggests ways to reduce your intake of saturated fats, the real culprit. This should be a plus for the egg industry.

If the above problem can be solved, the other problems can be worked out. New products containing eggs that are easy to fix will quickly be in supermarkets where the loss in egg sales has occurred. Cartoned egg sales have declined an average of 5 percent a year in the last 4 years. In 1988 it was probably off by 6 to 9 percent from 1987 levels. Because of these declining sales, cooler space for shell eggs has been reduced in many stores and taken up by new, hopefully quick turnover products.

Egg producers will likely suffer from poor economic returns into midyear 1989. The nation's table egg laying flock is 10 million birds smaller than a year ago and nearly the oldest on record. With about 15 million fewer pullets available between December 1st and May 1st than a year ago, the flock will get even older. During 1988, 19 million fewer pullets were placed in laying houses than a year ago, yet the average egg producer was not able to attain a profit during 11 of the 12 months. Losses to the industry in 1988 were the most severe in over 30 years. Table egg production was below 1987 levels from March forward, and losses were continuous until September. Even though exports were larger, fast-food and institutional sales were stable and growing, and egg breakers were cracking more eggs than in 1987. Due to the loss of sales in cartons, the industry did not discipline themselves enough to attain profitable prices in this drought affected year.

Consequently, the number of egg producers will shrink again until egg production adjusts enough to return a fair profit for those that remain. The least cost producer with the best marketing program should survive and do fairly well in the recessionary period of late 1989 and '90. However, it is very hard to adjust the nation's flock downward year after year and have a sustained highly profitable period. Egg producers are primarily producers first and marketers only when necessary.

By late 1990 the nation's table egg laying flock will likely number between 220 and 225 million. If that will be small enough to provide good returns to the entire industry is questionable. It may not be if the magnitude of decline in consumption in 1988 continues these next two years.

Areas of growing demand should continue the trend of recent

years. Eggs needed by egg products users, about 20 percent of all table eggs produced, should increase another 10 percent by late 1990 to about 24 percent. If new tests prove that eggs actually contain less cholesterol than current standards indicate, then growth in egg product use could explode.

TURKEYS

After beginning 1988 with a first quarter supply 32 percent larger than a year ago, the turkey industry whittled their supply down to 12 percent less by the fourth quarter. Losses were excessive in the first 6 months but strong in the main marketing period. If consumers purchase 5 percent more turkey meat in the fourth quarter than a year ago, which is well below the latest 5 year average of an 11.2 percent year to year gain, ending stocks on December 31st could be the lowest since 1956.

It appears that this industry recognizes the strong possibility of the coming recession since pullets hatched for first quarter slaughter is just equal to a year ago. This hasn't happened since 1984 when during the year a slight decrease in production from 1983 levels occurred. This industry also has a four year cycle of low to mediocre returns. These 4 year cycles were 1974 through '77, 1980 through '83, and 1987 through maybe '90. Superb profits occurred in 1973, '78, '79, '84, '85, and '86. If the industry holds poult placements equal to 1988 levels through the first half of 1989, then expands modestly, it may break the 4 year cycle of weak returns.

Since 1984, turkey meat disappearance has increased an average of 14.2 percent a year. With that kind of growth in the last 4 years it will take some real discipline within the industry to keep production under an 8 percent growth level in 1989. Especially if cold storage stocks on December 31st are less than 100 million pounds.

This industry will continue to enhance its wide variety of products to meet the diverse wants of our domestic population as well as be a strong competitor in world markets. Production and processing efficiencies will keep turkey meat prices very reasonable and an excellently valued product for use in developing new products for all ages and types of main dishes. I am quite optimistic for the future of the turkey industry.

BROILERS

Since the beginning of 1984 the nation's broiler industry has been very profitable. Production was planned to equal the excellent marketing programs developed by each firm. In only 4 months since July 1983 were profits on Whole RTC FOB Dock birds not attained. This is a record not equaled during the 70's or

80's by any other red or poultry meat industry.

To accomplish this feat, the industry strove to continually reduce costs without reducing efficiency. Promoted their products extensively. Placed new and exciting ready to heat and eat complete meals in grocery stores. Provided restaurants, institutional feeders, and fast-food establishments the kind of products that saved them time in preparation, tasted good, and sold well. Otherwise, they not only produced with improved efficiency which they are well known for, but actually developed and implemented excellent marketing programs that worked extremely well. These new marketing programs did not develop overnight. Some of the superb microwavable chicken products available were developed many years ago but were not mass produced for nationwide distribution until the firms had the ability to promote them adequately. Timing is very important.

Some smaller regional firms continue to be quite profitable since they have established a well rounded niche in markets that they do an excellent job servicing. Brand name development with an amply funded promotion program has worked well for the broiler industry. Their ability to develop and market such a diversity of products that fit the need of all Americans is amazing and a story by itself. Their new products are well accepted by consumers and the health associations alike. A double blessing.

This industry seems to create a merger story every few months as firms that wish to acquire a new market often find it less expensive to buy the market through purchasing the firm that holds it than competitively battle head to head for years to attain it. It is often quicker and more efficient to purchase the expertise, brand name, consumer loyalty and acceptance in that certain product's specific market.

In 1989 and '90 this industry will likely enjoy slower growth than in the last 8 years but retain a good return on their investments. They should continue to be able to be the most efficient converter of feed grains to meat of all livestock and poultry. Some in the turkey industry may argue with me, but most data I receive still indicates broilers to be king in efficient feed conversion.

I think the broiler industry will not ease up on their efforts to produce the most meat for the least total cost, including high tech methods such as genetic engineering. In doing this, they will continue to utilize contract growers if available in their areas. But they will put extra effort on development, implementation of more new products, new marketing techniques that will benefit each of their wide variety of customers.

100-55

The poultry industry firms that survive into the 1990's will most likely be those with the least amount of leverage, the lowest overall production costs, the ones that provide the best service and have the tastiest, highest quality, moderately priced end product and well balanced marketing programs. Competition creates challenges, creativity, and new opportunities for those with the dreams, desire, and ability to persist toward their long-term goals. I believe the future for the egg, turkey, and broiler industries are bright, but not easy. The need for protein foods worldwide continues to grow daily.

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WHAT'S AHEAD IN LIVESTOCK AND MEAT MARKETING

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The livestock and red meat industries have always been shaped by and have adapted to outside developments, technologies and consumer tastes and demand. The future is likely to be no exception. The last two decades have seen an almost complete change in the ownership patterns of the larger red meat packing and processing companies. While the next decade or two may not see such extensive upheaval, further significant changes are probable. But the most important challenge to the industry's marketing ability is to respond correctly and quickly to changing consumer demand. That demand has changed considerably during the 1980's. A successful marketing response is vital.

HISTORY

Meat marketing has undergone extensive changes since Colonial times when most families raised and slaughtered meat for their own needs and for those few who lived in nearby towns. With the opening of lands to the West, some animals were driven overland. Pork packing activities were begun on major rivers for packing and shipping by water transportation to the Eastern seaboard. In the middle of the 18th century, the building of the railroads stimulated the rise of large terminal livestock markets. The availability of growing amounts of labor in these urbanized centers and the development of the refrigerated rail car permitted the building of large, efficient meat packing plants under the leadership of early industrialists such as Gustav Swift and Philip Armour. The addition of modern assembly and disassembly lines kept these plants efficient and in a dominant industry position for decades and into the twentieth century. Early in this century the balance began to tip away from large terminal market plants to the country plants as the industry again adapted to its external environment. The paved road system, motor trucks, extensive use of the telephone and telegraph and later the radio permitted newer, small town plants to grow and prosper. These newer plants utilized the nearby livestock supply and the abundance of labor that was no longer needed in production agriculture.

In the forties and fifties, the industry adapted quickly to sweeping changes in food retailing from an era of service to the new self service methods. Advances in films and packaging materials aided this adaptation. Further changes have continued to this day as the industry has accommodated vast changes in household size and therefore serving and package size, diverse retail and foodservice outlets, the need for greater time-saving services, particularly precooking, the

mobility of population as consumers work, move and "eat around the town" and "around the clock." The adaptability of the industry in the past is impressive.

PRODUCER TRENDS

The number of cattle feeders and hog producers has declined considerably in recent years. The average size of feeders and producers has increased several fold. In addition, the location of the cattle feeding industry changed from the Upper Mid-West to the drier, milder Middle Central and Southern Great Plains. The cow-calf industry is much more decentralized in many, relatively small production units over a wide geographic area. Meanwhile in the competing poultry industry, broiler production has grown rapidly in the Southeast, South Central and Eastern Seaboard states. Production units have become considerably larger while the geography of production has changed little in recent years. Turkey production units have also grown larger. Expansion has occurred in most major production areas but particularly in the South East.

PACKER-PROCESSOR TRENDS

Considerable changes have taken place in the last two decades in the structure of the meat packer and processing industry. In the 1960's, the names of the largest dozen red meat packers were familiar and had changed little for many years.

After considerable industry turmoil, we now have three large fresh meat companies, several large branded meat companies, most of whom operate in the red meat, poultry and fish industries and several large consumer-minded poultry companies. In addition there remains hundreds and hundreds of medium sized and small companies with successful functional and/or geographic niches in the industry.

There are many contributing factors to the vast changes which have occurred in the last two decades. Among them are: 1) the movement of the cattle feeding industry from the Upper Mid West to the Central and Southern Great Plains; 2) the national inflation after 1965 which combined with cost-of-living clauses in most large packer labor contracts caused labor costs in most older, larger companies to soar; and 3) the many changes in consumer demand, particularly their desire to consume much more poultry.

In this environment, new packers emerged and secured better locations nearer the new cattle feeding areas and quickly attained significant cost advantages as national inflation hurt older packers' costs and competitiveness. Changes in consumer demand, household size, and packaging technology led to the emergence of large, consumer branded poultry competitors. The commercial broiler industry had originally been dominated by feed companies producing unbranded fresh whole chickens.

WHAT'S AHEAD?

Given recent research results in the economies of scale of large production units, it is likely that the past trend toward larger cattle feeding and hog

production units will continue. The trend towards bigger farm production units and larger slaughtering plants which has already occurred in the fresh red meat packing industry should mean more direct marketing of animals from producer-feeder to packer-processor. This trend has been in motion for decades and should continue. For producers, this means that the price is established before ownership or possession is lost. But it also means there are fewer potential bidders at any one location. It means that many physical economies exist - large, efficient shipments directly to large efficient plants with minimal handling and transfer costs in between. It is not good news for market institutions whose function has been to congregate animals at neutral marketing locations for open, public bidding by many participants. It does not necessarily mean that effective competition will be any less or that the bidding will be any less fierce - only that it will be conducted on the feeder's premises.

There should continue to be a trend toward larger, meaty animals. Consumers want leanness without giving up taste and palatability. Producers and processors want larger animals which allow efficiencies in handling, transporting, slaughtering, boning, processing and marketing.

There has been considerable separation in ownership and operation of slaughtering, cutting and boning facilities and further processing facilities. Trimmed, lean fresh meat, cut to specification is now a finished product to the slaughterer, a vital raw material to the processor. This trend seems likely to continue.

There should continue to be a trend toward more consistency of quality in meat products. The consumer receives consistent quality, usually under brand names in most non-meat food purchases in the retail store, in the deli and in much of the foodservice industry including the fast food sector. Recent trends toward more branded marketing, particularly in poultry indicate that consumers like to buy branded merchandise. The inability of generic foods to make much headway in the marketplace further attests to this trend. Consumers don't like surprises, particularly bad surprises, in their purchases, including meat purchases.

The trend toward larger and fewer livestock feeders and producers has already contributed to greater consistency in animals. Future technological developments and knowledge in embryo transfer, artificial insemination, genetics, animal nutrition and other fields will further enhance our industry's ability to achieve greater consistency in quality and size of animals and birds. This should also allow and encourage more automation and mechanization of packing and processing functions. It should also enhance the marketing of meat cuts against other foods and non-foods where size, quality and other characteristics have historically shown less variation than they have in meat.

More attention will be paid to product safety. Consumers are very knowledgeable about and concerned with safety in the food they eat. Scientists are better able to define, detect, and measure problems of food safety. The media is a powerful force for disseminating information on product safety problems or potential problems. Maintaining consumer confidence in a safe meat supply is extremely important today to all participants.

There was once a time, when most meat was prepared in the home, that demand for meat changed very slowly. Most price changes in the short-run were caused by supply changes. Now, because of the emergence of the poultry industry with its much shorter production cycle and with fewer, larger, highly capitalized firms, ably operated by managers who respond quickly to outside market stimuli, year to year changes in total meat production are much less than they were formerly.

But now demand can change more quickly. We don't have to learn how to cook different meat dishes for our families. We can change our demand easily and immediately by selecting a different entree on a menu, or by pointing to a different meat in the deli to warm up in the microwave, or by selecting a different prepared entree from the frozen food case. Or a dietitian can easily select a different meat for serving in an institution such as a college, hospital or nursing home.

Thus, safety and confidence in our meat supply is extremely important. Demand can change quickly and mightily in hardly more than an instant as nearly 245,000,000 consumers can be informed on a safety or health problem within hours. An example of this occurred when the potential of salmonella in chicken was aired in a popular network TV program in March, 1987. The potential financial impact of health and safety problems in animals and meats on the producers, feeders and packer-processors is very large.

CONSUMERS

The consumer and his or her demands and needs will continue to play a most important part in tomorrow's marketing of meat. Consumers are an increasingly diverse group. The typical household of the 1950's and 1960's - a father, a mother and several young children - is only a memory.

However, there are still some general trends and tendencies which can be stated concerning consumers and their wants. Some of these seem to be timeless. They want quality and low cost. They want consistency of quality in both the meat and the services surrounding it. They are increasingly mindful of health and safety concerns and knowledgeable of nutrition. Therefore, they want their meat to be lean and healthful. They want as little visible, trimmable fat as possible in their meats and have no use for trimmed fat or bones in their homes or lives. But the meat must also be tasty and satisfying or the consumer won't be back for more.

Consumers are very busy. They are therefore very interested in the services they purchase with their meat. A greater proportion of adult consumers are in the commercial work force. They are busy, often too busy, to have time to perform long preparation of meat entrees in their homes. They are accustomed to "heat and eat" preparation of many non-meat foods and also desire it for their meats.

These consumer trends indicate that there are growing market opportunities for prepared meat items - precooked, preportioned, lean, tasty and tasteful, quality meat that is ready to heat and eat with minimal in-home time consuming preparation. It has to be perceived as safe and healthful. It has to be of

consistent quality and be satisfying to those who consume it. Food manufacturers are challenged to meet these demands and adapt their products to modern microwave preparation. Microwave ovens have not been as successful in meat preparation in the past as it has for many other foods. However, intensive, current research and development continues in hopes of rectifying these problems.

With so many of today's consumers in the commercial work force, and in addition, living active lives outside the home, there is an increasing demand for food "on the run" and "around the clock" - outside of the normal home environment. There is an opportunity for manufacturers to produce meat products for consumption in such diverse places as convenience stores, club stores, in-store delis, free standing delis, vending machines, traditional supermarkets, restaurants and cafeterias, fast food eating places as well as schools, hospitals and other institutions.

While it is impossible to accurately predict all the marketing trends, it does seem that tomorrow's marketing environment will favor branded products of consistent quality. They will contain qualities of convenience with fast and easy preparation. They will likely be lean with little or no visible fat and perceived to be healthful and safe. Fresh, lean, whole muscled meat products will be preferred. They must yield consumer taste satisfaction. They will be available in many forms, locations, and times on the clock. Product cost and price will continue to be important. And consumers will be more interested in the healthfulness, nutrition, and taste satisfaction of a product and less interested in whether it comes from a meat animal, poultry, fish, or another protein source.

CHALLENGES

Some of the most important challenges to the livestock and red meat industry include:

1. Meeting the consumer demand for lean, taste satisfying meat products with a favorable nutrition profile.
2. Marketing of animals and meat which are perceived as safe as well as nutritious for consumers.
3. Turning back the challenge of poultry products which have made considerable inroads during the 1980's.
4. Meeting the consumer demand for services - products which are convenient, pre-cooked or microwavable and available in many sizes, forms and locations.
5. Developing marketing systems for animals and meat which are efficient and which accurately and quickly reflect consumer demand and value of product.
6. Keeping all costs low and prices moderate to compete with other protein sources, particularly poultry.

It will take many kinds and sizes of organizations to adequately and efficiently serve consumer needs. Opportunities abound. Niches will be numerous. The winners will be consumers and those who service them best.

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SUNFLOWER MARKETS: A FUNCTION OF GOVERNMENT PRODUCTION POLICY AND OIL EXPORT PROGRAM

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The marketing of sunflower has changed considerably in this country since the crop was commercialized some 12 short years ago. Back then there was no government intervention on production or marketing. It was simply a cash crop with normal business practices of payment on delivery. It was a heavily dominant export crop with the shipment of the raw product mostly to Europe.

U.S. farmers in the Northern Plains quickly adapted sunflower into their rotation with small grains. They found that the inclusion of a 'row crop' increased their small grain yields and aided in weed control. It also allowed them to participate in the dynamic market of the world oil complex.

In 1979-80 U.S. farmers were planting 5.5 million acres of sunflower and 10 million acres appeared to be a reasonable figure by 1985. However, acreage declined consistently in the eighties and in the 1988 production season only 2 million acres were planted.

What happened to the U.S. sunflower crop in the eighties? It follows basically the same pattern established by the U.S. soybean crop during this period, except sunflower declined at an accelerated pace. As farmers reacted quickly to strong oilseed prices in the late seventies, they reacted just as quickly to strong U.S. government signals in the eighties. There simply was no room for a non-program crop in the 'race for base' established in the '81 and '85 farm bills.

At the same time, the European Community established lucrative oilseed prices for farmers. The result was an unprecedented growth in rapeseed, sunflower and soybean. The EC no longer imported sunflower and rapeseed, on the contrary the EC has become an aggressive exporter of vegetable oil.

To attract acres away from the farm program, prices for sunflower seed required a reasonable premium above the supported crops. Several export markets provided that requirement. Mexico and Portugal were active buyers of sunflower seed, sometimes at a \$50 per ton premium over the local processor market. However, Portugal's entry into the EC and Mexico's debt crisis eliminated the last of the lucrative markets. These markets also stimulated competitive production in Argentina.

Since 1986, the sunflower farmer has depended heavily on the local processing plants for a market. These plants look to the Chicago oil market for pricing and a margin. Huge oil crops, especially of palm and EC oils in 1986, depressed the world oil market to lows not seen since the very early seventies. Sunflower prices fell correspondingly to levels that were unprofitable to producers. Without of production subsidy or loan price, farmers abandoned the crop and planted other more profitable non-program crops, continued to build base, or simply fallowed non-base acres.

With smaller crops, the U.S. sunflower industry was no longer able to meet the needs of established markets. Canada's canola industry made inroads in the Mexican market as did Argentine sunflower. The U.S. was no longer competitive in the world oil market except for PL480 sales and an occasional narrow window when South American supplies were drawn down. Increasing oil imports complicated the domestic market. The result was a very difficult situation. Prices were too low to attract farmer attention, but too high to compete internationally and sometimes domestically.

The market and production situation today is somewhat different with the addition of the Export Enhancement Program (EEP) and the Sunflower Oil Assistance Program (SOAP). Both programs allow U.S. oils to compete in the international market. With EEP, U.S. sunflower oil sales in 1987-88 were a record. Prices to farmers in the spring planting season of 1988 were at break even or above the cost of production and acreage stabilized after four straight years of decline.

For this market year, we anticipate that SOAP will provide sunflower oil exports of at least 50,000 tons and that EEP will provide for another 40,000 tons. Targeted countries will likely be Egypt and Algeria. In addition, GSM102 or PL480 financed exports of oil will occur in Mexico, Iraq and several Central American countries. Cash markets for sunflower oil will consist of Japan, Venezuela, and possibly the EC. Total oil exports are expected to be 230,000 tons. We expect seed exports to Mexico only totaling 150,000 tons. In addition, we expect continued strong demand for confectionery sunflower in Europe.

The future of sunflower and other U.S. produced oilseeds will be in the hands of policy makers as the new farm bill is written. It

is anticipated that oilseed groups will focus attention on further flexibility in farmer planting decisions. Without some major restructuring of the base and planting concept, U.S. oilseed production will continue to decline with yet more acreage shifting to our competitors.

The National Sunflower Association believes that policy makers should treat oilseeds as a neglected opportunity. Many U.S. farmers have abandoned sunflower and other oilseeds in their rotation and need an incentive to reintroduce the crop. Many of the U.S. oilseed and product customers overseas have gone elsewhere for supplies. Many of our competitors have developed an oilseed infrastructure and are not likely to simply roll over and allow the U.S. to reassert its former position in world markets. The U.S. domestic oil users have grown accustomed to oil imports.

There must be better times ahead for the U.S. oilseed industry. The permitted planting provision in the Drought Disaster Bill for sunflower and soybean is a good omen. The aggressive administration of EEP for oil in 1987-88 market year is another good indication. We are optimistic and look forward to the rebuilding of the U.S. sunflower and oilseed industry for the good of the producer, industry men and taxpayer.

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5 AGRICULTURAL POLICY PROVISIONS AFFECTING SOYBEAN PLANTINGS

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Agricultural Economist, Economic Research Service

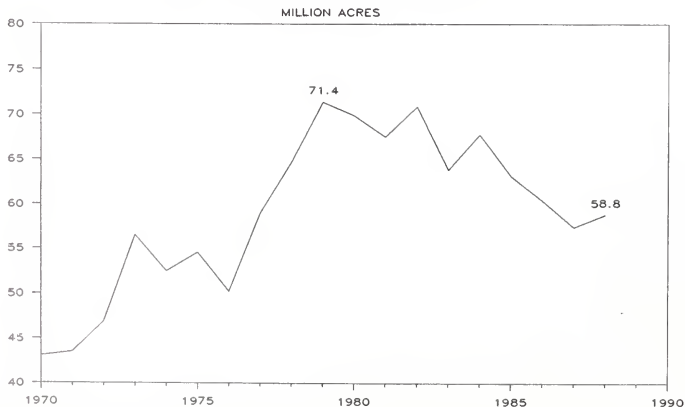
Soybean acreage in the United States has been generally declining over the last 10 years. Since its peak of 71.4 million acres in 1979, U.S. soybean plantings fell to 57.4 million acres by 1987 and were slightly higher at 58.8 million acres in 1988 (figure 1).

Among the factors affecting the decision to plant soybeans are policy provisions for other crops. These include:

- o annual program provisions for wheat which affect the level of soybean double cropping,
- o rules for establishing and maintaining base acreages for program crops under different farm acts which affect the amount of soybeans planted on base acreages, and
- o the provision included in the drought legislation this past summer which gives the Secretary of Agriculture discretionary authority to allow soybean plantings on permitted base acreages of program crops in 1989 and 1990.

This paper examines how these policy provisions have affected soybean plantings in the 1980s and how they are likely to affect 1989 plantings.

Figure 1
U.S. SOYBEAN PLANTINGS



Wheat Program Provisions

Annual program provisions for wheat are important for determining soybean acreage because of the indirect effects on double cropping. Double cropping of soybeans in the summer following the harvest of the winter wheat crop takes place in the Southeastern, Delta, and southern Corn Belt regions of the country. However, for a wheat program participant, of the acreage enrolled in the program, soybeans can be planted as a second crop only on permitted acreage for wheat plantings. Soybeans cannot be planted on the portion of acreage enrolled in the wheat program that was idled under the annual program provisions, either under an acreage reduction program (ARP) or under any paid land diversion (PLD). Therefore, when acreage reduction programs and required paid land diversions for wheat are relatively high, removing wheat base acres from production, this also reduces the amount of land that can be double cropped with soybeans. In contrast, when these annual wheat program provisions are lower, fewer wheat base acres are idled and more land is available to be double cropped.

Figure 2 illustrates how soybean double-cropped acreage over the last 10 years has been affected by annual wheat program provisions. Shown in the chart are soybean double-cropped acres along with the combined percentage of the wheat ARP and any required wheat PLD. Soybean double cropping trended upward at the beginning of the 1980s, particularly when there were no ARPs or PLDs in 1980 and 1981. Soybean double cropping then declined from its peak of 11.1 million acres in 1982, corresponding to higher combined levels of wheat program ARPs and required PLDs of recent years. With wheat ARPs plus required PLDs of 25 to 30 percent over the last 5 years, soybean double cropping fell to 3.7 million acres by 1987 and was 5.1 million acres in 1988.

The level of soybean double cropping also is affected by farmers' expectations of soybean prices. Figure 3 shows soybean double cropping over the last 10 years and price expectations as measured by prices received by farmers for soybeans in May just prior to the double cropping planting period. Higher price expectations can be seen to be generally associated with increases in the level of soybean double cropping.

To estimate the combined effect of wheat program provisions and soybean price expectations on the level of soybean double cropping, a regression equation was estimated over 1981-1988:

$$(1) \quad \text{SBDC} = 4.72 - 0.173 \text{ WHARPPLD} + 0.891 \text{ SBPMAY}$$

(2.8)
(1.4)

$$R^2 = 0.71$$

SBDC is soybean double-cropped land (million acres), WHARPPLD is the sum of the annual wheat ARP requirement and any required PLD (percent), and SBPMAY is soybean price expectations preceding the double-crop plantings period represented by soybean prices received by farmers in May (dollars per bushel). Numbers in parentheses below each of the estimated coefficients are t-statistics.

Figure 2
SOYBEAN DOUBLE CROPPED ACRES

AND WHEAT PROGRAM PROVISIONS

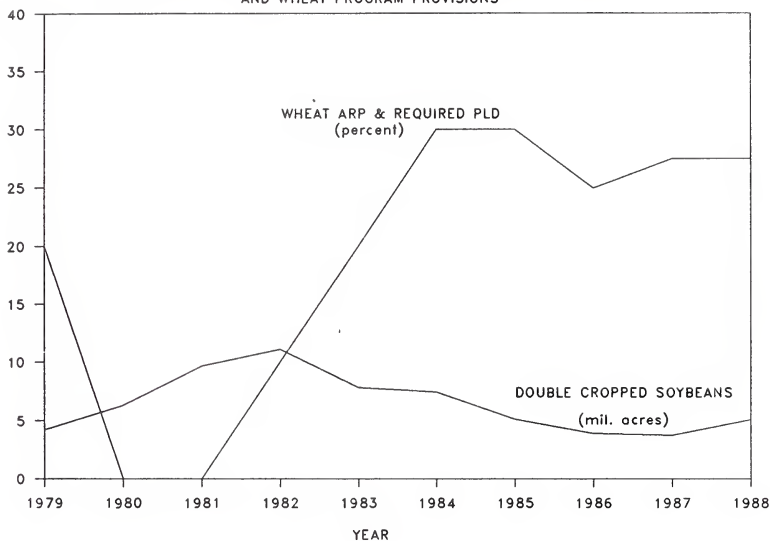
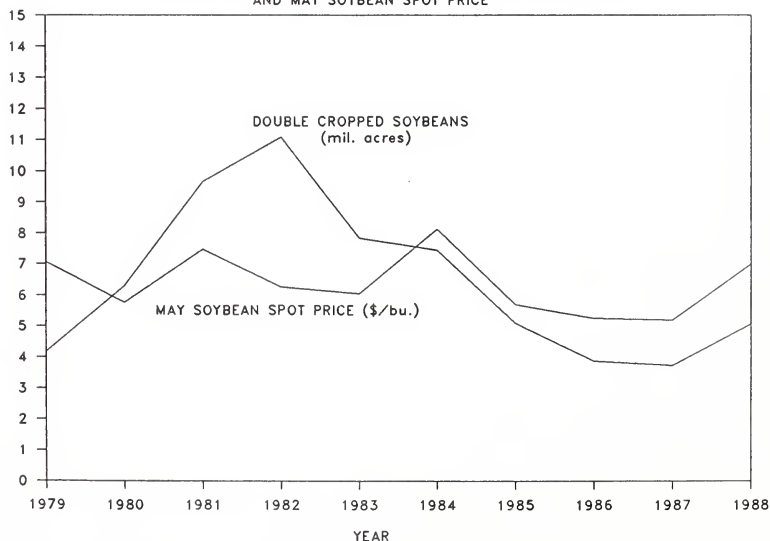


Figure 3
SOYBEAN DOUBLE CROPPED ACRES

AND MAY SOYBEAN SPOT PRICE



The coefficients in equation 1 have the expected signs. A negative relationship is indicated between soybean double cropping and annual wheat program provisions. A positive relationship between soybean double cropping and soybean price expectations is indicated. Nearly three-quarters of the variation in soybean double cropping is explained by this equation.

Using this equation, the indirect effects on soybean double cropping resulting from the changes in the 1989 wheat program can be estimated. In 1988, the wheat ARP was 27.5 percent and there was no PLD. For 1989, the wheat ARP has been reduced to 10 percent and again there will be no PLD. Multiplying the change in the wheat program provisions variable ($10 - 27.5 = -17.5$) by the appropriate estimated coefficient (-0.173) implies an increase in soybean double cropping of about 3 million acres. Price expectations could change that amount, particularly if Southern Hemisphere soybean production this winter rises significantly. Other factors that could affect soybean double cropping include the Conservation Reserve Program, timely harvesting of the winter wheat crop, and weather at the time of plantings. Nonetheless, without any wheat harvesting problems or weather-related soybean plantings problems, an increase in soybean double cropping of 2 to 3 million acres seems likely in 1989.

Base Acreage Rules for Program Crops

Rules for establishing and maintaining base acreages for program crops have changed under different farm acts. Because soybeans compete with some of these program crops for the allocation of land in farmers' plantings decisions, changes in base acreage rules have indirectly affected soybean plantings.

Under the Food and Agriculture Act of 1977, production controls were administered with set aside programs. For a given set aside rate, the farmer could plant as many acres as possible as long as the appropriate portion of the acreage planted with the program crop was held out of production. While this provided much flexibility to the individual farmer to allocate land among different crops, it was not an effective national program in controlling production of program crops because the production restrictions had no link to any historical base plantings records. Consequently, these programs provided no base-related program barriers to the planting of soybeans.

Crop-specific acreage bases were introduced in the Agriculture and Food Act of 1981 to re-establish a link to historical plantings in annual production limitation programs. For most program crops, base acreages for 1982 through 1985 were the average of the acreage planted and considered planted in the two previous years. Base acreages of program crops could be underplanted and still maintained if they were planted with a nonprogram crop. Under the 1981 Act, soybeans were an acceptable nonprogram crop for the purpose of maintaining program crop base acreages on underplanted base land. So again the agricultural policies under the 1981 Act provided no base-related program barriers to the planting of soybeans.

Under the Food Security Act of 1985, a number of important changes occurred in the rules for establishing and maintaining base acreages for program

crops. Most important, soybeans were no longer considered a nonprogram crop for purposes of maintaining base acreages on underplanted base land. Also, for most crops, base acreages were now equal to a 5-year average of previous acreage planted and considered planted. For upland cotton, any years with no planted and considered planted acreage could be omitted from the 5-year calculation as long as the resulting base calculation did not exceed the previous 2 years' average of planted and considered planted acreage.

These rule changes created substantial base-related barriers to the planting of soybeans by imposing significant base penalties if soybeans were planted on underplanted base acreage. For example, if a farmer with a 100 acre corn base wanted to plant soybeans on those acres, then in the following year 200 acres would have to be planted with corn in order to re-establish the original 100 acre corn base. To do this, the farmer would need to be a nonparticipant in the second year even though corn would be planted because the farm would be planting more than its base. Thus, to plant soybeans in the first year exposes the farmer to additional price and income risk in the following year.

If the same farmer did not have additional land to overplant in the second year to re-establish the corn acreage base, the base penalty resulting from planting soybeans is even more severe. To re-establish the 100 acre corn base, the farmer would have to plant 100 acres with corn for 5 consecutive years. Similar to before, the farmer would be a nonparticipant for each of those 5 years, thereby significantly extending the duration of the increased exposure to price and income risk.

Alternatively, if the farmer wanted to re-enter the programs in the year after planting soybeans, there would instead be a long-run permanent loss of base acreage. In the year following the planting of soybeans, the 5-year average base calculation would equal 80 acres $[(100+100+100+0)/5]$. In the following year the corn base is further reduced to 76 acres $[(100+100+100+0+80)/5]$. In subsequent years, the corn base falls as low as 59 acres and finally converges at about 67 acres. In this circumstance, the long-run base penalty for planting soybeans in one year is a permanent loss of corn base of about 33 acres.

The 1985 base maintenance rules impose similar penalties when the 2-year moving average applies in addition to the 5-year rule. To re-establish the full 100 acre base, here the farmer would need to plant 100 acres with the program crop for 2 consecutive years following the planting of soybeans. This again increases the exposure to price and income risk, although for a shorter period of time than under only the 5-year rule. If the farmer wanted to re-enter the programs in the year after planting soybeans, however, the long-run permanent loss of base acreage would be more severe than under only the 5-year rule. In the year following the planting of soybeans on base acres, the base for the program crop would be reduced to 50 acres. In the next year, the base would fall to 25 acres. In subsequent years, the base would rise as high as 37.5 acres and then finally converge at about 33 acres. Thus, when the 2-year base rule applies, the long-run base penalty for planting soybeans in one year is a permanent base loss of about 67 acres.

These base penalties have created significant base-related barriers to planting soybeans which have been important in recent years. Rather than competing with annual program provisions for program crops, soybeans are additionally competing with the longer-run maintenance of program-crop base acreages.

Disaster Assistance Act of 1988

Provisions included in the drought legislation enacted in the summer of 1988 address in part the base-related barriers to planting soybeans. The 1988 Act grants discretionary authority to the Secretary of Agriculture to allow plantings of soybeans (and sunflowers) on 10 to 25 percent of permitted acreage for most major program crops in 1989 and 1990 without any loss of base, as long as the resulting increase in plantings is estimated to not reduce soybean prices below 115 percent of the loan rate for the previous year.

To estimate the effect that this provision could have on 1989 soybean plantings, net returns calculations were derived for soybeans and compared to net returns derived for corn and upland cotton, the 2 major program crops competing with soybeans for land in plantings decisions. The analyses were conducted for the regions where the major land competition takes place. Corn Belt net returns were estimated for the corn and soybeans plantings decision. Delta States net returns were estimated for the upland cotton and soybeans plantings decision.

A major factor in conducting this analysis is the administrative rule for implementing this program regarding the amount of land required to be diverted. To illustrate, with the 1989 corn ARP of 10 percent, suppose that the full 10 to 25 percent range of permitted acreage is allowed to be planted with soybeans without any loss of corn base. For a farmer with a 100 acre corn base, permitted plantings would be 90 acres and 9 to 22.5 acres could be planted with soybeans. If the farmer elects to plant 9 acres with soybeans, then 81 acres could be planted with corn. The land required to be diverted under the ARP would be calculated using the 81 planted corn acres and would equal 9 acres. This totals 99 acres. The administrative rules then require the remaining acre be placed in conserving use (CUA) in order to protect the full 100 acre corn base.

This CUA requirement means that, regardless of the corn/soybeans plantings mix chosen, 10 acres would have to be idled, either as ARP land corresponding to the corn plantings or as CUA land implicitly corresponding to the soybean acreage. To illustrate, if the farmer in the example planted 10 acres with soybeans instead of 9 acres, then 80 acres could be planted with corn, the ARP land would be 8.9 acres, and the CUA land would be 1.1 acre. Changes in ARP and CUA acreages offset each other with total idled land still at 10 acres. Further, any additional acre planted with soybeans is offset one-for-one with a reduced acre planted with corn. This means that a producer's land allocation decision to exercise the option to plant soybeans on permitted base acreage for a program crop can be analyzed by examining the relative net returns from soybeans and from the program crop on an acre at the margin.

For a corn farmer, net returns on the additional acre planted with corn would be market revenues on the production from that land, plus deficiency payments on the program yield, minus the variable costs associated with corn production on that acre. If the farmer planted soybeans instead, the net returns would equal market revenues from the soybean production minus the variable costs associated with soybean production. (In many net returns analyses comparing soybeans with a program crop, the returns for the program crop must be adjusted to reflect the idled land requirement corresponding to the planted program crop acreage. This type of returns adjustment is not used in this analysis because of the CUA requirement implicitly corresponding to soybean plantings under this program which match one-for-one with the ARP requirement if the program crop were instead planted on that land.)

Figure 4 shows for the Corn Belt the breakeven soybean prices required under the provisions of this program corresponding to a range of corn prices. For each corn price plotted on the horizontal axis, the chart shows the soybean price that makes the net returns from soybeans equal to the net returns from corn. Corn Belt yields used in this analysis were 132 bushels an acre for corn and 38 bushels an acre for soybeans. Corn deficiency payments were based on program yields of 116 bushels an acre and the 1989 corn target price of \$2.84 a bushel. Variable costs used were \$136 an acre for corn and \$54 an acre for soybeans.

The dominant role of corn deficiency payments in protecting net returns is indicated by the nearly-horizontal portion of the chart which corresponds to corn prices below the target price of \$2.84 a bushel. The slight slope to that portion of the chart reflects program yields being below actual yields so that deficiency payments do not apply to some of the production. At prices above the target price of \$2.84 a bushel, the chart has a steeper slope, reflecting only market returns as deficiency payments are eliminated.

This analysis suggests that soybean price expectations in the Corn Belt next spring would have to be \$7 to \$8 a bushel to be competitive with the corn program in the allocation of land in the plantings decision. Further, there is more risk in net returns from soybeans which have no deficiency payments than there is in net returns from corn. Some acreage could be planted with soybeans under this program by farmers who expect to be affected by the \$50,000 payment limitation, but that acreage would likely be minimal. Consequently, the drought legislation provision allowing soybeans to be planted on base acreage is not likely to add more than 1 million acres to 1989 soybean plantings from the corn base.

Similarly, figure 5 shows for the Delta States the breakeven soybean prices required corresponding to a range of upland cotton prices. Again, the important role of deficiency payments is indicated for cotton prices below the target price (73.4 cents a pound). In this analysis, soybeans are not competitive with upland cotton in the Delta States because soybean prices exceeding \$13 a bushel would be required to break even with cotton net returns. Even farmers who expect to be affected by the \$50,000 payment limitation would be unlikely to plant much acreage with soybeans because expected net returns from cotton still would be higher than those from soybeans.

Figure 4
SOYBEAN/CORN BREAK-EVEN PRICES, 1989/90

SOYBEANS PLANTED ON PERMITTED CORN BASE

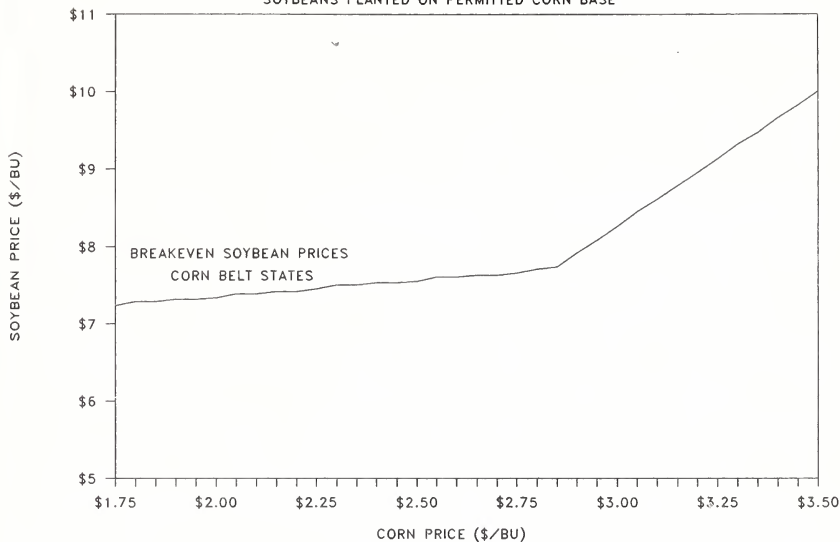


Figure 5
SOYBEAN/COTTON BREAK-EVEN PRICES, '89/90

SOYBEANS ON PERMITTED COTTON BASE

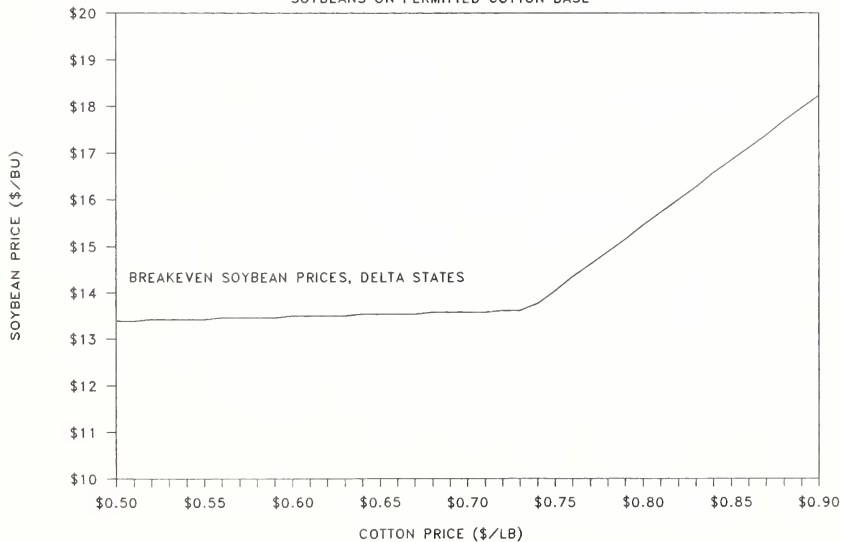


Figure 6

SOYBEAN/CORN BREAK-EVEN PRICES, 1989/90

SOYBEANS PLANTED ON PERMITTED CORN BASE

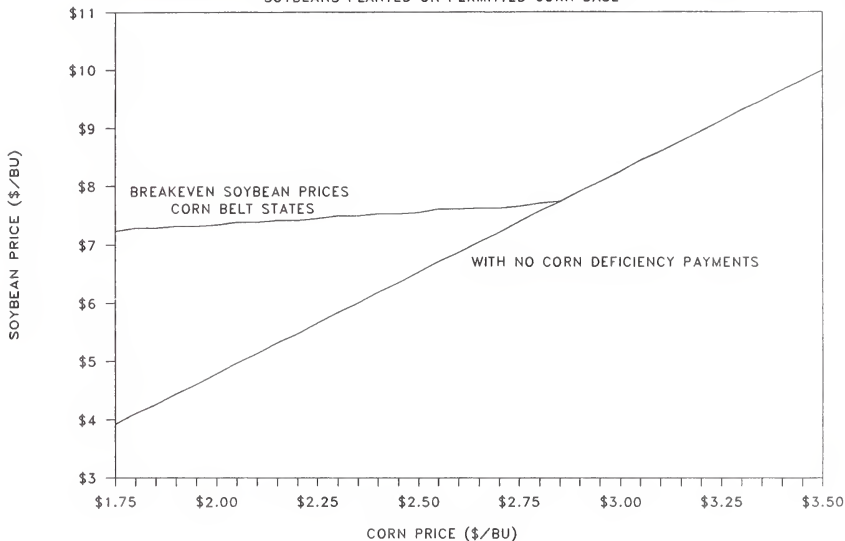


Figure 7

SOYBEAN/COTTON BREAK-EVEN PRICES, '89/90

SOYBEANS ON PERMITTED COTTON BASE

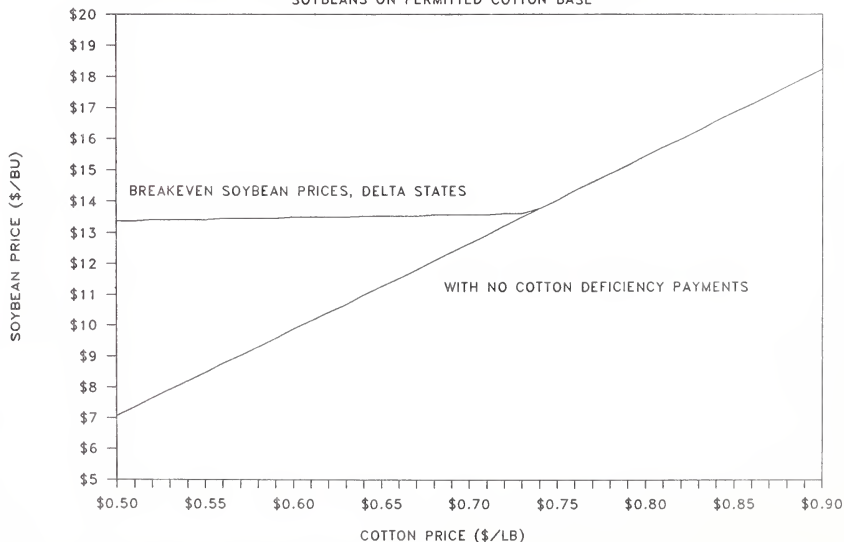


Figure 8
SOYBEAN/CORN BREAKEVEN PRICE RATIOS

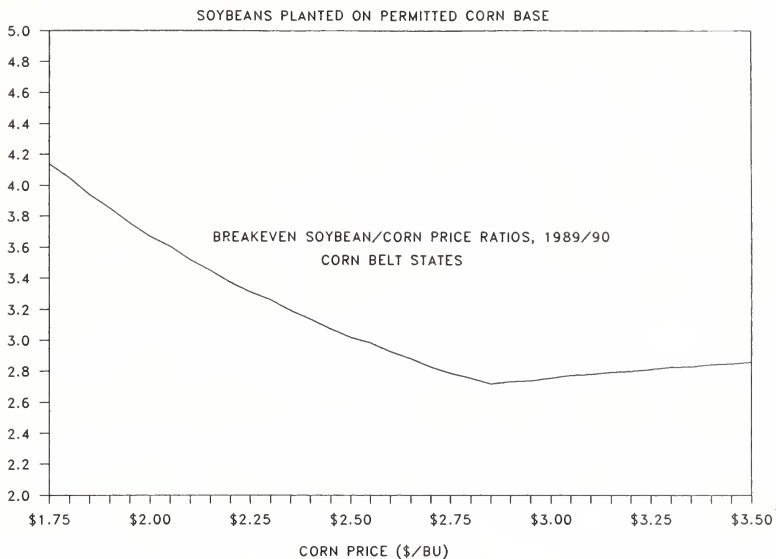
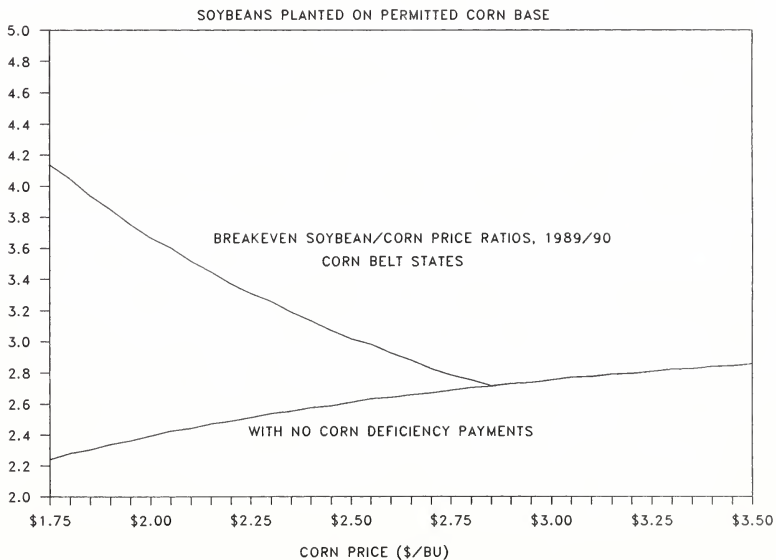


Figure 9
SOYBEAN/CORN BREAKEVEN PRICE RATIOS



Two additional issues can be addressed with this net returns analysis. First, since income protection of farm programs through deficiency payments is a dominant feature in holding breakeven soybean prices up when program crop prices are below target prices, how would the breakeven calculations be altered if deficiency payments were eliminated? Figures 6 and 7 augment the breakeven soybean price charts shown before in figures 4 and 5 with the lines of breakeven prices calculated without corn and cotton deficiency payments. Much lower breakeven soybean prices are indicated. In the soybean/corn analysis, breakeven soybean prices fall below the soybean loan rate for part of the corn price range shown, and in the soybean/cotton analysis, breakeven soybean prices approach a range where price expectations could make soybeans competitive with upland cotton. This type of analysis is not strictly valid, of course, because deficiency payments are a major incentive for being a program participant as well as for establishing and maintaining acreage bases. However, the wedge-shaped areas of figures 6 and 7 derived in this analysis for corn and cotton prices below target prices are indicative of the magnitude of the cross-commodity effects on soybeans resulting from program provisions.

Second, what do the breakeven price calculations imply for breakeven price ratios? Using the net returns soybean/corn plantings decision analysis, figure 8 illustrates how the effects of deficiency payments on breakeven soybean prices is extended to the breakeven price ratios. As corn prices fall below the target price, corn returns are partially protected by deficiency payments. Consequently, because the resulting breakeven soybean prices are held up, this pushes the breakeven soybean/corn price ratios higher.

Figure 9 illustrates the combination of these 2 issues by adding to figure 8 the breakeven soybean/corn price ratios that would result if corn deficiency payments were eliminated. The wedge-shaped portion of the chart derived for corn prices below the target price represents the implicit cross-commodity corn program effect on soybean/corn breakeven price ratios.

Conclusions

Soybean plantings in 1989 will depend in part on program provisions for other crops. The reduction in the wheat ARP could add 2 to 3 million acres in double-cropped soybean plantings. The 1988 drought legislation provision giving the Secretary of Agriculture discretionary authority to allow soybean plantings on permitted base acreage of program crops could add an additional million acres in soybean plantings, mostly on corn base acreage. The determination of 1989 soybean plantings will depend critically on soybean price expectations this spring which could affect these estimates somewhat. With 1988 soybean plantings of 58.8 million acres, however, these analyses suggest an increase in 1989 soybean plantings to a range of 61 to 63 million acres.

ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

United States Department of Agriculture
Washington, D.C.



Outlook '89, Session #25

For Release: Wednesday, November 30, 1988

STATE-FEDERAL COOPERATION

Honorable Terry E. Branstad
Governor of Iowa

Under Secretary Roland Vautour, thank you very much. I'm not surprised that you confused Ohio, Idaho, and Iowa; it happens to me all the time, especially when I get out east here. I think it maybe underscores something that we governors think, and that is that we're going to have to have more lessons in geography.

I'm pleased to be here, and especially to have the opportunity to participate in this conference on rural development.

Indeed, we do have rural areas in Iowa, as they do in Idaho and Ohio and Vermont and North Dakota, and all over this country. And rural America has not shared in a lot of the economic prosperity of many other parts of the country in recent years. And, yet, we do see, as you mentioned in the introduction, exceptions where communities in rural America are doing very well. In fact, a few years ago, I invited the Governors' Task Force on Jobs, Growth, and Competitiveness to come out to Osceola, Iowa. It was an opportunity for the governors to see first hand how one community has done some really outstanding things to diversify its economy.

And then, of course, the governors had a task force over the last year on this whole subject of rural development. I had the privilege of chairing that task force, and I want to share with you some of the recommendations that came out of that task force. We released our findings at the National Governors' Meeting in Cincinnati, Ohio, back in August, and I think it's appropriate to share them with you at this time.

Rural America is indeed in a period of transition. There have been dramatic changes in this decade of the 1980's. We've lived through a very severe farm crisis and, indeed, land values dropped dramatically. In my State, they dropped about 65 percent, and, actually, they're coming back a little faster than the information you had.

According to the Federal Reserve, land values in Iowa are up 21 percent this year. And I think Iowa State's going to come out with some figures in the next couple of weeks that I would guess will be a little less than 21 percent; I'd guess more in the range of 10-15 percent. When you consider that this is the driest year of my lifetime, and that we've just lived through a very severe drought, the fact that land values are going up that much, under those circumstances, is extraordinary.

*Based on a transcript.

I just returned from a trip to Japan where we're marketing Iowa beef in that Japanese market, and I want to give some credit to the department, and especially to the trade representative, Clayton Yeutter, for working out that agreement for the Japanese to phase out their quotas and restrictions on imported beef. I think it's going to be a great new market for beef, and the response of the Japanese consumers that I visited with on Sunday of this week was really tremendous.

But we are faced with a very severe problem in rural America today. The populations of 50 percent of our rural communities have dropped since 1950. If you look back to 1900, an even larger percentage has lost population. From 1979 to 1986, the rate of growth in the number of rural area jobs equalled only 46 percent of the rate of growth in jobs in metropolitan areas. The USDA has projected that the rural growth rate will be 30 percent less than the urban growth rate through the year 2000. Clearly, the future of rural America is seriously threatened if these trends continue.

Communities, for the most part, have relied solely on one industry, often agriculture, but some cases that might be lumber or mining. These industries are becoming less and less labor-intensive. In short, many rural communities will simply cease to exist unless they are successful at diversifying their economies and attracting more business and more jobs.

And while agriculture is recovering from the crisis of this decade of the 1980s, we're seeing that farm units are larger and larger, and that the population necessary to support production agriculture is being reduced. So we need more and more non-farm jobs if we're going to stabilize the population and indeed have population growth in rural America.

Now, there's even some talk in Washington these days about further dramatic reductions in Federal support for agriculture. I think it would be a devastating mistake to further reduce the commodity price supports at this time. As you know, commodity price supports in 1986 totalled about \$26 billion. It's now down to \$14 billion. It's down already from \$26 billion to \$14 billion. That's a reduction of almost \$12 billion in this short period of time.

The projected future costs in the '85 farm bill are relatively stable, and we need to maintain stability in agriculture now to continue to have this modest improvement or, hopefully, significant improvement in the farm economy.

I don't think it's too much to have 1 1/2 percent of the budget, which exceeds \$1 trillion, invested in food production in this country. Compared to the rest of the world, we are investing very little in protecting the food that we produce. Agriculture should not be asked to absorb disproportionate cuts in an effort to bring the Federal budget deficit under control. Agriculture's already had a substantial reduction in the price support program, and I think further drastic reductions would be a grave mistake.

The health of agriculture will continue to improve if the philosophy of the 1985 farm bill is maintained and there are no significant negative alterations to it. We should not reduce our investment in rural America; rather, we ought to be looking at ways that we can invest in rural America and make rural America grow as much or more than the rest of the country.

1985 farm bill is maintained and there are no significant negative alterations to it. We should not reduce our investment in rural America; rather, we ought to be looking at ways that we can invest in rural America and make rural America grow as much or more than the rest of the country.

Indeed, we've got plenty of space out there for people. We've got other places in this country where we have crowding and pollution and crime and big problems, and we can definitely absorb a lot of these people in rural America where we have the infrastructure, and where we have the quality of life, and where we have a lower cost of living. And we ought to look at that as an asset, and we ought to be willing to make some investment in that.

The consensus of the National Governors' Association Task Force on rural development was that we must have flexible Federal and State assistance programs to meet the needs of rural America. And we're encouraged about the fact that, indeed, rural development is on the agenda for this conference. That is a significant step in the right direction, and we appreciate the fact that USDA is beginning to recognize the importance of developing local leadership and making investments in ways that are going to facilitate the meeting of the needs and the goals set by the people at the local level and rural America.

The Governors' Rural Development Task Force called for all of us to work together to create a new alliance for rural America, that alliance being a local-State-Federal alliance. Rural development has to be a bottom-up process. The people in Washington, D.C., cannot decide what is the best thing for Lake Mills, Iowa, or Grundy Center, or any other community in the State or in the country. The people in those communities have to decide that for themselves. State and Federal government cannot predict which community is going to grow; only that community can decide its future.

We do have a number of communities in Iowa that have formed organizations to work on a cooperative basis; one of them is called the Community Commonwealth. Many others have formed, working together in an effort to utilize the resources of more than one community to be successful in economic development. Each community or each group of communities needs to develop a vision for its future and a strategy for achieving that vision.

Rural development is succeeding where committed local leaders have developed a strategic plan and are working to achieve those goals. And in Iowa, in the last few years, I can point out community after community where the people have decided on their own to get together and do something about it, or maybe they've invited me or one of these rural development teams to come in and help them do it. And whether they call it Grinnell 2000 or whether they call it the Community Commonwealth's futures plan, or whatever it is, we're seeing one after another getting seriously involved in planning their own future and doing something about it.

State governments have a responsibility to help provide information and expertise, financial and technical resources so that these communities can have access to those resources as necessary. And we need an alliance of States with local officials and with the Federal government also working together in a bottom-up process.

The key to the new alliance is greater flexibility in Federal programs. The stars of the show need to be the people living in rural America; it's their future that's at stake. They're the people that have to make it happen. And when I go out to talk to communities in Iowa, I make it very clear I'm there as a facilitator; I'm there to encourage and to assist them. But then I go on to the next community. And I have a whole State to represent, and I can't make it happen day to day in their community; it's up to the people living there.

But what I can do and what I think you can do here in Washington is to give them the technical advice and assistance, the programs that can make it possible for them to use their own talents and their own abilities to make things happen in their communities. We want to see the State and Federal governments truly in a supportive role; not telling the people what to do at the local level, but providing the assistance and the help necessary for the local leaders to be able to use their own assets and get some assistance from the outside to achieve their goals.

The Task Force laid out a broad 12-point agenda for the States to assume a leadership role in helping in developing this new alliance. I'm not going to go through all 12 of the points; I'm just going to hit some of the highlights.

The Task Force recommended that rural communities be helped to prepare for the future by providing them with expertise and individually tailored information: demographic information, information about resources. I also think that to a great degree the process of having the people sit down at the local level and list their assets and liabilities, and then build on those assets and determine how they're going to overcome their liabilities is an important process.

We need to help rural industries that are already there to develop new products, or to help them get into new markets, certainly the international marketplace. One company that is selling Iowa beef in Japan is located in Heartly, a very small town up in northwest Iowa. And that is the processor over in Japan that I was with on Sunday, and is still there selling beef in Japan, from a very small town. I think the population of Heartly is about 1,200 people, if that. So that's what we're talking about in rural development.

How do we make wise investments in rural America? I think it's by being flexible and by providing the assistance to the people who need it.

I remember when I was a state representative that there was a group that got a bequest to build a golf course out in rural Iowa. And the folks came down from Des Moines, and they knew all the answers. No, there's not enough population here; you can't support a golf course out here in rural western Winnebago County, between Buffalo Center and Woden; it just won't work. Well, these folks wanted to do it. They had a barn that they wanted to convert into a clubhouse; they were willing to do it with volunteer labor. And they only needed the approval of the State. And the bureaucrats, finally, after a lot of pushing and shoving by the local legislators and some other folks, finally agreed to let them do it.

And I can tell you -- and we've gone through the farm crisis and everything else, and this happened 12 years ago -- it's a very successful operation, and it's a great recreational opportunity for the people that live there. And the

reason why it succeeded was the people in that area believed in it. And they were willing to work on it and invest in it, and they made it happen.

We don't need the people from Washington or Des Moines going out into the communities and saying, you can't do it. What we need to do is to try to help them to be able to realize their goals and utilize the programs that we have available, in order to meet the goals that they set up at the local level.

One of the areas that we need to provide some help is to take away some of the discriminatory provisions in terms of health care reimbursement to rural hospitals. We also need to make sure that we have educational resources available, and that we have adequate transportation available so that they have those resources that are so necessary for economic development.

We need to make the most of the opportunities for economic growth, such as helping the existing businesses to grow, and investing and upgrading the skills of the workers. The economy is changing and the skills of yesterday are not adequate for the jobs of tomorrow. We need to make sure that our workers are able to fulfill those job opportunities of the future, whether they're in telecommunications, or the service industry. In our State, biotechnology is an area of tremendous growth.

The expanding role of the States is to develop a process to help channel Federal assistance and State assistance to meet the needs that are set at the local level. I see three key areas for Federal involvement. One is to change the mix of Federal spending in rural America from the present mix, which is skewed towards programs that are basically income maintenance, and move to programs that promote economic growth and risk-taking. We must change the mix so that greater investments are made in human skills and in economic growth, because those are the kind of investments that are not just going to maintain people in a certain state, but will give them an opportunity to grow and diversify their economy.

The second area where I believe that the Federal government can play a key role is to support this new alliance by providing more flexibility to local leaders to reorient Federal programs, and to have those programs administered through the States. I'm not advocating setting up some new bureaucracy, separate from what's available there, but to go through the existing structure that the States already have in place and that's available to make this thing work. Too often, communities embark on new programs in response to Federal objectives rather than local priorities.

Former Secretary of Agriculture Bob Bergland, in testifying before our committee in Cincinnati, recalled that when he was Secretary, there were programs to require that industrial parks be built in rural areas. He said the industrial parks were built and never an industry ever put in there, because it was a Federal directive that said this was the way it ought to be done and it wasn't something that met the needs of that local community. So it reinforces that it needs to be a bottom-up approach, not something that's imposed on people.

We need to ensure that Federal policies in health, transportation, and trade are attuned to rural needs. And I would point out that the recent changes in trade policy have been very helpful, and we hope that that direction will

continue to be encouraged. And, certainly, the weaker dollar is also helping us, frankly, in comparison to the yen and some of the other currencies.

I believe that the time has come for a national commitment to rural America. We need to say that we believe that rural America is important and that we're willing to invest in rural America because we think it's a good place to live and a good place to work. The people living there should not be treated as second-class citizens.

We need an alliance that energizes and assists and helps finance a revitalization of rural America. Without it, the predictions of the doomsayers that the rural areas' populations are going to continue to decline will come true. We will make those Census Bureau predictions which are so much baloney reality. I believe that we can prove the Census Bureau to be dead wrong. In fact, I know of many, many communities that are growing in a very significant way because of what they're doing in economic development. With a little more help from the Federal and State governments, that can happen in many more communities all across this country.

We need a firm national commitment that says that we want to revitalize the rural economy; we want stronger, more vibrant rural communities. And I believe that if we make this commitment and move forward with it in an aggressive way, the decade of the 1990's can be a period of growth in rural America. There's no reason why we can't have as much or more growth in rural America as we have in the other parts of the country.

Thank you very much.



ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

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GLOBAL DIMENSIONS: REVITALIZATION OF RURAL AMERICA

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Outlook '89
November 30, 1988

I. Introduction

I am pleased to have this opportunity to share some thoughts on rural development with this Outlook '89 Conference.

In particular, I am honored to share this topic with Governor Terry E. Branstad of Iowa, a chief executive from a Midwestern state that is having to deal with the tough challenges of revitalizing a rural economy.

Eighteen months ago, Deputy Secretary of Agriculture Peter C. Myers announced to Congress a six-point Rural Regeneration Initiative for the U.S. Department of Agriculture. One of the six points was for "the Extension Service to place additional priority emphasis on rural revitalization education and to work with state and county officials, community leaders, universities and colleges to develop education and training programs suited to community needs, ... building on local institutions, ... expanding interest in rural revitalization."

About the same time we had a national Extension Task Force developing priority initiatives for our nationwide Extension System, including one on Revitalizing Rural America. Today I want to share with you what we learned and its impact on our vision for rural America. Our vision embodies a Rural America with a strong entrepreneurial spirit ... a diversified economy ... and the ability to compete effectively in the national and global marketplace.

II. Some Background on Rural America

As we drive across America, we visualize a pastoral image ... reinforcing the misbelief that rural America is an agrarian society. Though declining, production agriculture is still vital but, our rural economy resembles the urban sector more and more. Today, Rural America shares many of the societal concerns that confront urban areas -- changing economic structures, unemployment, need for family support services, such as care of children and the elderly, crime, poverty, pollution, and changing service demands on local governments. But, despite these many similarities with urban life, "rurality"

suggests that different approaches are needed for a rural America which, though urbanizing, remains distinct. By "rurality," I mean distance, low-population density, and natural resource-based activities.

Rural America has a highly fragile economy. Despite this condition, it also possesses many strengths: ... an attractive life style; human resources for further development; a rich, renewable natural resource base; a source for air and water, visual esthetics, scenic and recreational opportunities -- you add your own.

Let's examine the complexities of the rural economy: Since 1982, rural employment has grown at about half the rate of metropolitan areas. The poverty rate is 50 percent higher in rural areas than in urban areas. Median rural family income has fallen from 81 percent of the urban level in 1979 to 73 percent in 1986. The population "renaissance" of the 1970s has ended. Rural population growth has slowed to less than the urban rate of growth. Each year, 500,000 to 750,000 more people are moving to the cities as are moving to the countryside.

Nationally, the rural economy is not a monolithic economy. It is typically specialized. There are about 2,500 rural counties. Of these less than a third depend primarily on agriculture for their economic base. Another third depend mainly on manufacturing. The remaining one third are about equally divided between counties dependent on government facilities--such as universities, hospitals, and military bases--those dependent on mining, and those with high concentrations of federal government land.

Large distances characterize rural America and this is basic to understanding the rural economy. Almost two thirds of the rural counties are remote from urban centers, averaging 50 to 100 miles distance. This means many rural residents who seek employment in urban areas are forced to move from their homes.

Research tells us that the more diversified rural areas performed better economically during the 1969-1984 period than those less diversified. On average, rural areas grew more slowly during this period than did urban areas. Rural areas also had greater instability in employment trends than urban areas. This instability was greatest in counties specializing in the manufacture of durable goods, mining, and agriculture. Stability was highest in areas dependent on government facilities and with diversified economies.

The sources of Rural America's trouble are many. Wide distances still separate many small rural communities from the economic vigor of the Nation's cities. Despite major advances in communications and transportation in recent decades, the isolation and small size that characterizes much of rural America continues to limit its chances to share in the innovation-generated economic growth of the 1980's.

These constraints have left them vulnerable to the winds of change blowing in our globalized economy. Industries that only a few years ago sought out rural locations as low-cost operating environments have found even cheaper locations overseas. Globalization offers opportunities as well as challenges, but many rural communities still don't know how to effectively participate in that game.

III. Source of Wealth

Having taken a look at the past, let's take a brief look at some implications for the future.

We used to think that all wealth comes out of the ground as mined ore, grown food, logged trees, grazed forage, or pumped oil. At the end of the 1940s, our national consumption centered on the auto industry. At that time, 40 percent of the cost of a car was in raw material, the balance in labor, capital and technology. Compare that with today's electronics industry--television and video, computers, microwave ovens, compact discs--where only 3 percent of the cost of the product is in raw materials.

In the 1990s, our cars and computers will still require raw materials. However, an increasing, relative share of the wealth generated will come not from the ground but from what can be done to the raw materials by applying knowledge, information and technology. Take communications as an example: 100 pounds of fiberglass cable can now carry as much information as 2,000 pounds of copper cable used to carry.

Based on this observation, Rural America must confront some interesting challenges. As outlined in our Extension report "Revitalizing Rural America: A Cooperative Extension System Response," the challenges are:

- Hard work and the successful manipulation of natural resources will not guarantee economic success.

The present-day experience of thousands of rural communities that depend on farms, forestry, mining, fishing, and oil production ... reinforce the fact that control over soil fertility, water availability, and other aspects of farming and natural resource extraction do not necessarily translate into economic prosperity.

The survival of many rural families, especially farm and ranch families, depends on the economic vitality of the rest of the community, particularly the off-farm income generated by jobs in other employment sectors. In agriculture as in other economic sectors, both the competitive advantages of foreign countries and international monetary conditions exert hidden influences over the profitability of natural resource based activity. Rural communities cannot escape these facts.

To cope, they need to diversify their economies, not just tighten their belts.

The challenges are to: maintain and enhance enterprise competitiveness; create rural investment and entrepreneurial opportunities; increase off-farm employment opportunities by diversifying the rural economic base; and assist communities, businesses, families and youth with economic transition.

Another challenge: - - control over local destiny has been diminished.

Many rural areas are seeing decisions about their social, political and economic future made by absentee corporations; and in distant marketplaces such as Tokyo, London, Washington, or at the nearest large metropolitan center. Rural leaders must understand the dynamics of today's public and private decisionmaking, and learn to use these dynamics to their own advantage.

Finally, - - rural areas depend heavily on volunteer leadership.

Many of the Nation's 300,000 elected officials who manage the affairs of the country's 54,000 units of local government are volunteers. About 30,000 of these units are rural towns and counties with populations under 2,500. As a result, most rural areas have neither the time nor the resources to keep abreast of new developments and technologies necessary to operate today's complex institutions of government.

Rural America's challenges are threefold: ... To improve technical assistance and information for local community decisionmaking. ... To provide continuing education for rural leaders. ... To encourage participation in professional and governmental organizations that offer opportunities to share and learn.

IV. Economic Health

Let me summarize this view into the future based on the reality of the present.

A viable goal for rural America is to become more diversified and economically competitive with a pool of skilled, local public leadership. But, this goal requires a different perspective on what rural America can contribute and, ... the ability of rural leaders and institutions to utilize knowledge, information, and technology as economic inputs. Unless this happens, rural Americans will not be equipped to participate in the profit potential of the global economy.

Five factors need to be considered concerning rural America's quest to be economically competitive in global markets:

- First, entrepreneurial skills are needed for rural America to participate in the global economy.

For every example of a rural entrepreneur who successfully takes advantage of a new market opportunity there are probably thousands of missed opportunities. We need more examples like: Hibbing, Minnesota, an iron ore mining town that broadened its economic base by including a renewable resource, forestry. They built a new factory and now have a 4-year contract to ship 1.5 billion chopsticks a year to Japan.

- Second, many government policies, at best, do not promote global economic opportunities for small, rural enterprises. Frequently, these policies even act as disincentives.

Because national and state governments have the advantage of a broader view, they can be helpful to rural enterprises in taking advantage of global opportunities. For instance, how many rural leaders are studying the impacts on rural America if the current GATT (General Agreement on Trade and Tariffs) negotiations open up agricultural trade?

- Third, leadership to help bring rural communities into effective roles in the economy is now missing.

The small size of most rural places prevents them from benefiting from scale and agglomeration economies that allow larger areas to be innovative and remain competitive. Through coordinated actions, rural communities and rural businesses can choose economic strategies that will allow them to prosper in spite of their disadvantages.

- Fourth, there is little evidence that public and private institutions are supporting efforts to enhance the international competency of rural enterprises.

The strength of American domestic markets allowed American producers to become complacent in their understanding of foreign customs and business practices. It is increasingly evident that future economic prosperity will require greater involvement in foreign markets to offset foreign sales in this country. Rural enterprises will need to become as proficient in selling to global markets as they now are in meeting market demands of the next county.

- Fifth, the mechanisms now in place to help rural Americans understand and respond to global opportunities are inadequate.

Rural America lacks the think tanks and foundations that urban America relies on for strategic planning. Rural America will fall further and further behind if institutional mechanisms and interorganizational cooperation cannot be found, or created, to guide it along the path to the future.

V. Rural Public Management

As indicated previously, America's rural revitalization roots are entangled in a mosaic of social and economic situations.

The public perception of an agrarian society does not fit with the social and economic complexity existing in rural America today. While changing our perspective on what rural America has to contribute, we also need to change our approach in dealing with rural concerns. A couple of definitions to start building that new perspective for and by rural leaders will illustrate two approaches for addressing rural concerns.

"Public administration" is vertical control and direction within a specific sector--agriculture, manufacturing, mining--or territorial interest--national, state, or local. It is directing and controlling within its vertically constructed area of interest to achieve specific institutionally determined objectives for a perceived public need.

"Public management," on the other hand, is comprehensive and horizontal, cutting across sector and territorial interests. It is facilitating, coordinating, and sharing. It deals with public issues of a broad and complex nature. It is matrix management. It focuses as much on community development as on economic development.

The concept of public management is not bound to political economies and historical governance structures. This type of management promotes the development of comprehensive rural strategies that transcend political agendas, organizational interests, and governmental boundaries. It works to involve both public and private interests as compatible resources not as

competitive resources. For example, in the area of natural resource utilization, public management could effectively blend individual resource interests such as agriculture with concerns for rural development and environmental stewardship.

VI. Summary and Conclusion

The revitalization of rural America will not be easy. The issues are complex and require multiple and coordinated solutions. Informed public leadership is needed to adapt decisionmaking to forces that impact Rural America. Appropriate levels of local government services and facilities, often a different type than in earlier years, are needed to support a viable rural economy.

Rural America must manage continuous structural adjustment and institutional change. It must diversify its economy and develop the ability to be competitive in national and global markets. However, these hopes for rural America are often at odds with present reality.

Bringing programs for rural America into line with this new reality is the challenge that now confronts both our country's future ... and all of us here today who have a vested interest in that future - and a strong, viable Rural America.

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GROUNDWATER QUALITY: A CATALYST FOR A NEW LAND MANAGEMENT ETHIC

By Christine Olsenius
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Emerging water quality concerns are forcing a new perspective in land and water management. If you deal with land and water, your job description will change in the next few years. Preparing for change is part of what this conference is all about. But change is a topic that is easier to discuss than to accomplish. How can we plan for the future, based on the mindsets of today?

Is the United States Department of Agriculture (USDA) looking at the future with the kind of perspective that will allow it to face new and unknown challenges? How will the role of Cooperative Extension and the Soil Conservation Service change? Are our present attitudes and policies at the cutting edge of emerging issues, or are they institutional barriers to change?

What are some of the water quality issues that will impact the USDA into the 21st century?

Each year about 1,600 million tons of soil wear away from 417 million acres of U. S. farmland into lakes, rivers and reservoirs. While soils in some areas of the country can tolerate a certain amount of erosion, many fragile soils cannot.

Erosion control remains the top priority of USDA because of its threat to farm productivity, but sediment by volume, is the greatest pollutant of surface waters in the United States. (Robinson, 1972) Sediment from cropland, pasture/range land and forest land is estimated to constitute 60 percent of the sediment discharged to the nation's waters from all sources. The costs of offsite damages caused by erosion have been estimated to be between \$3 billion and \$13 billion dollars annually. (U.S.D.A., 1978) Agricultural nonpoint source pollution has been reported as a moderate or severe problem in 36 states.

Farm policy and modern farming practices encourage farmers to apply agrichemicals in ever greater amounts. Between 1966 and

1981, herbicide use alone increased 175 percent. Fertilizer use in the U. S. increased over 200 percent between 1960 - 1980, with nitrogen holding the lead.

While surface water pollution has been more readily monitored since the passage of the Clean Water Act, groundwater is now emerging as a greater concern. Groundwater supplies drinking water to 53 percent of the nation's population and 97 percent of its rural population. Land-use activities have a potential to affect groundwater.

Although hidden from sight, groundwater isn't hidden from sources of contamination. Major sources of groundwater pollution include: agricultural chemicals; feedlots; leachate from septic systems; landfills, mining activities; underground storage tanks and hazardous waste disposal sites.

- An estimated 20 million tons of commercial fertilizer was used on American cropland in 1985 and an average of 661 million pounds of active pesticide ingredients are used annually by American farmers.

- According to the USDA, some contamination of groundwater by agricultural fertilizers has been confirmed in 31 states and contamination of groundwater by pesticides has been confirmed in 37 states.

- There are an estimated 93,000 landfills in the United States.

- There are an estimated 181,000 surface impoundments, most of them unlined.

- There are approximately 20 million home septic systems.

- The U. S. Geological Survey (USGS) has estimated that 20 percent of rural wells tested showed nitrate concentrations indicative of human activities and approximately 6 percent of those wells exceeded the recommended nitrate concentrations for drinking water.

- There are an estimated 1.5 - 2 million underground storage tanks currently being used to store gasoline, with as many as 75,000 to 100,000 believed to be leaking.

- Conservatively estimated, the average homeowner produces one pound of hazardous waste each year. That means in a community of 20,000 people, that 10 tons of hazardous waste can go into the local landfill each year.

These examples clearly demonstrate a relationship among groundwater, surface water and land-based activity. They also clearly demonstrate the important emerging national concern with the public health implications of water contamination. The past decade has seen an increase in federal funding of water quality programs and a reduction in water development funding. The Clean Water Act; Safe Drinking Water Act; Superfund; Federal Insecticide, Fungicide, and Rodenticide Act; and pending groundwater legislation clearly reflect a growing national concern over water quality, particularly drinking water.

Never has an issue been so closely tied to public health as groundwater contamination. Thousands of private and community wells have been closed nationwide. Because groundwater is often untreated and largely untested, yet used by such a large number of people, the potential threat to public health is considerable.

In a recent poll to state health departments taken by the Association of State and Territorial Health Officers, water quality was listed as the number one concern by environmental health officers.

Protection of underground drinking water supplies is now among the nation's priority environmental issues. Given the seriousness of these water quality concerns, groundwater protection is becoming a major force in reshaping traditional land management practices. Groundwater has become the catalyst for a new land management ethic.

Rick Kelley of the Iowa Department of Natural Resources was recently asked to highlight the most significant event that pushed Iowa to develop its innovative groundwater legislation. He said the single most influential event was the public opinion poll that showed 52 percent of Iowans surveyed believed farm chemicals were the greatest threat to their drinking water.

According to the USDA, 80 percent of the people they surveyed believe that groundwater pollution is a national problem and 70 percent believe that agricultural chemicals are the cause. That poll was undoubtedly instrumental in making water quality one of the top two priorities in the USDA National Conservation Program.

Groundwater monitoring that revealed quantities of pesticides in residential wells was the primary initiative for Massachusetts' Wellhead Protection Program, and for groundwater programs in Iowa, Wisconsin, Minnesota and California.

And it was groundwater monitoring in the 1960's and 1970's which revealed high nitrate levels that pushed Nebraska into a leadership position in nitrogen management efforts.

According to Jeffrey Carlson, chief of the Pesticides Bureau of the Massachusetts Department of Food and Agriculture, "States are being forced to take a more assertive role in dealing with groundwater contamination problems. In view of the economic, environmental and health-related costs associated with contamination, more and more states are leaning towards a prevention-based policy."

While there is a lot of concern about the inadequacy of risk assessment data on health effects, there are enough red lights going on in research and enough unknowns to warrant a cautious approach. The issue is far more complex than the debate over "what is a part per million." No one is exposed to just one part per million of anything today.

The potential long-term health effects of pesticides, the synergistic effect of multiple pesticides and multiple exposures with other toxic substances in the air, water or food we eat; exposure to substances at home and work; our genetic predisposition to disease and the growing concern with pesticide degradation products, (the metabolites or breakdown products) has led public health professionals to a more preventive, proactive stance. They do not want to regret in 10 years, the decisions they are making today.

States are going to define risks within a social, political and economic context, as well as a scientific one. Science does not exist in a void and science alone, does not dictate public policy.

States will be setting policy and developing management practices without all the data. Society cannot afford to wait until all the data is in, because all the data is never in. Research is an ongoing process, but so is management and policy.

There are also major social and economic issues related to groundwater contamination.

Connecticut has dealt with the issue of liability for groundwater contamination from agricultural chemicals. The State Department of Environmental Protection recently found that five farmers had contaminated 280 private wells with the pesticide EDB. The company that manufactured EDB paid for the installation of water filters in the affected homes. The State recently passed legislation protecting farmers from liability if they follow certain prescribed management practices. You can no longer say that what you do on your land is your own business, if it affects groundwater. There will be increasing personal and corporate liability for groundwater contamination.

It has been said that government policy has traditionally emphasized cheap food, but in so doing, fails to account for the external costs of pollution from modern agriculture. Yet communities and businesses are becoming more aware of the hidden costs of pollution to local economic development. As they develop frameworks for assessing the costs of environmental degradation, there may be an impetus to consider such costs in establishing a farm policy and commodity programs more in harmony with conservation programs and environmental objectives.

Well monitoring, installation of filter systems, bottled water, new well construction and connecting to alternative systems are all significant costs that are associated with groundwater contamination. If a municipality must look for an alternative system, it could begin to compete with other municipalities for limited supplies. Water pollution could further limit usable, available water supplies, especially in water-short regions.

According to real estate analysts, soil and groundwater contamination on a potential development sight reduces the value of the real estate by the cost of the cleanup. In two small Minnesota suburbs where contaminated wells were discovered in 1987, county assessors recently interviewed environmental specialists and real estate agents in an effort to re-evaluate home values.

The communities had three levels of contamination:

81 properties had levels of contamination severe enough to require the use of bottled water.

90 properties had trace levels that were under the threshold to require bottled water.

365 properties were in an area determined to have high potential risk. They were included in a well advisory area.

The following valuation reductions were established for 1988:

\$19,000 for properties using bottled water,

\$12,000 for properties with trace levels in well water and

\$3,000 for properties in the well advisory area.

The total reduction in market value was \$3,714,000. This resulted in an approximate 1.8 mill increase in the local mill rate. The amount of tax reduction experienced by affected properties has to be picked up by all other properties.

In a small Massachusetts town of 4,000 people, \$3 million dollars was recently spent on a new water system as a result of private well contamination from ethylene dibromide and aldicarb. When property is transferred in Olmsted County, Minnesota, there is a finance company requirement that water samples be taken by the county health department and that certificate letters on the conditions of the well and septic system be issued. These market mechanisms will provide a stronger incentive to proactive groundwater management than any federal or state legislation.

Lastly, no discussion of water issues is complete without mentioning the potential impact the "greenhouse effect" could have on the country's water supply. Congress recently directed EPA to conduct studies on the effects of a major warming and what could be done about it. The summary of the study of the effects, which is being sent to scientists for their comments, makes it clear that the EPA is concerned.

"We have no experience with the rapid warming projected to occur during the next century," the report draft states. "The findings collectively suggest a world that is different from the world that exists today...The ultimate effects will last for centuries and will be irreversible."

Among the study's findings are that up to 50 percent of Southeast farmland and 22 percent of Great Plains farmland could be abandoned by 2030, as hotter and probably dryer weather makes agriculture uneconomical.

While there has been discussion and debate for years about the "greenhouse effect", scientists continue to debate its severity, timing and impact, but change is evident. Yet amid the debate one reality holds true. Most water management in the United States is based on the obsolete perception that water supplies will remain constant in the foreseeable future. This attitude hinders flexible, realistic, long-range planning for adequate water supplies, particularly, in already vulnerable water short regions.

Water planners, policymakers, cities, businesses and industry must build a changing water/weather dynamic into their water supply and demand forecasts to enable more efficient and realistic water management for the 21st century.

In the latter part of the 20th century, we have come to realize that most of our troubles stem from neglecting the interconnectedness of knowledge and the interdisciplinary character of all real world problems. Our general and professional educational processes must incorporate this multi-disciplinary concept into their training programs and management approaches.

What does this mean to USDA. The rules for land and water management are changing. We will be managing land and water differently in the next 20 years than we managed it in the last twenty years. If your job touches on land and water issues of any kind, your job description will change.

At a 1987 conference on Agricultural Chemicals and Groundwater Protection: Emerging Management and Policy sponsored by the Freshwater Foundation, the U. S. Environmental Protection Agency, the National Agricultural Chemicals Association and planned in conjunction with USDA, conference participants made a number of recommendations. I would like to highlight five of them here, along with five challenges for USDA in the decade ahead.

- 1 - An immediate need exists on behalf of agencies, organizations and farmers for information on agrichemicals and their impact on groundwater quality and public health.
- 2 - Farmers need practical, demonstrable, best management practices regarding agrichemical use and groundwater protection.
- 3 - Institutional barriers built into bank loans and government programs which encourage excessive agrichemical usage, need to be eliminated. Food production and commodities programs should be brought in harmony with conservation and environmental goals.
- 4 - Farmers need economic incentives to change current practices which rely on the heavy use of agrichemicals.
- 5 - A need exists for continued groundwater research and monitoring to assess the extent, direction and impact of agrichemical contamination.

The growing national concern over the quality of groundwater is providing the USDA with five major challenges:

- 1 - The economic and public health implications of groundwater pollution are forcing a more preventive and proactive approach to management and policy. Economics and public health are the new politics of water quality - the driving forces behind present and future management and policy decisions.
- 2 - The groundwater connection has been a catalyst to forming a more holistic perspective on all land use activities, but in particular, agricultural land use and this new perspective will reshape traditional land and water management programs.
- 3 - We have already passed most of the major federal water legislation and the states are clearly taking the lead on groundwater. The challenge we now face is implementation. How do we institutionalize best management practices, how do we pay

for groundwater monitoring and who should pay? These are just a few of the less glamorous, but ultimately more important issues which determine whether our legislative goals are achieved.

4 - These problems did not develop overnight and they will not be solved overnight. Point source pollution lent itself to technical solutions but nonpoint source pollution is a complex social, political, legal and economic problem which requires new attitudes and management processes.

5 - Broad-based public involvement and support is critical to developing effective, enforceable and lasting water management plans. We can only succeed with grassroots cooperation and support.

These challenges are not urban issues, rural issues or agricultural issues, they are social issues. We are all part of this problem and we all need to become part of the solution. And what is at stake is sustainable development, protecting and managing those resources which sustain our social and economic base.

For change to occur, we need three things; information, education and incentives. Information is data. Education is getting that data to the right people, at the right time, in an understandable and timely format. Information and education can change attitudes. But incentives change behavior. Economics and public health are two of the strongest incentives we have for protecting water quality.

The USDA can provide the research and education, disseminate the information and encourage the incentives which will lead to wiser land and water management. USDA can develop strategic partnerships with agencies and organizations whose expertise they need to stay in the forefront of the issues. It can reach out to an expanded constituency and build the cooperation and consensus necessary to effective land and water management.

USDA is an information business in the middle of an information revolution. It needs new information. It needs it in new formats, from new sources for new people with new problems.

In the future..."the power centers are wherever the brightest people are using the latest information in the most creative ways." (The Knowledge Executive, Harlan Cleveland, 1985)

The USDA needs to be such a power center for land and water management for the 21st century.

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MAGNITUDE AND EXTENT OF WATER QUALITY PROBLEMS IN THE UNITED STATES

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Water quality problems are in the TV news, newspapers, trade journals, and scout manual. Information about water quality is found everywhere from local well drilling advertisements to state water quality management plans to federal law. Most Americans believe there is a problem but their perception, obtained from the media, seems either locally overwhelming or nationally abstract. The citizen asks: Where and why is water quality a problem? How bad is it?

The popular press calls attention to agriculture's role in water quality but the production of food and fiber is a necessity. Agriculture must continue or people will not. Agriculture is joined by most other enterprises as being a source of water pollution. Agriculture admits to its share of the problem and is working on solutions. All sources must consider the problem. This discussion is an overview of national water quality problems. The agricultural outlook format of this conference places an emphasis on the agricultural sources.

Concepts Needed to Understand the Location of Water Quality Problems

A few concepts are needed to understand the location of water quality problems. These concepts include:

1. Ground-water problems are not separate from surface water problems. There is only a single source of water.
2. Water quality problems may exist where water uses, designated by state law, are impaired.

Almost all water comes from precipitation. Changing physical conditions, where precipitation strikes the earth, determine whether it becomes ground or surface water. Precipitation that does not infiltrate the soil and become available for use by plants, may evaporate or move as surface runoff. The movement of water away

from the soil and its loss of use by plants is a waste from an agricultural production standpoint. Soil water that is used by plants, is the driving force of agricultural production.

Soil water that percolates through the root zone may recharge ground water. If the moving water picks up polluting substances and transports them in runoff or ground-water recharge, the introduction of the material may become a source of a water quality problem. Water comes from a single source and its pathway determines whether it may be a surface or ground-water problem.

Another concept used to define water quality problems is based on the classification of our rivers and streams. These water bodies are designated by state law (standards) according to their potential use. Typically designated uses are agriculture, industry, drinking water, recreation, and fish and wildlife. These designated uses reflect the water's natural and potential quality in light of the economic application. Substances from any source may enter streams and impair their quality until the water can no longer fully support the designated uses. Satisfactory water quality must support the designated use. Quality is determined by comparing the physical and chemical constituents of the water and the biological communities that it supports against the state-use standard.

Ground-water uses are designated for aquifers in some states. The number of states that have ground-water quality laws is increasing.

Location of Water Quality Problems in the United States

Substances that enter and impair designated water uses may come from point discharges, such as from the end of a pipe that carries waste to a stream. Substances may also come from nonpoint pollution sources that are diffuse and vary in discharge over time and space. These substances are produced by human activity, such as land use and management. Nonpoint pollution sources that may cause water quality problems include activities from agriculture, construction, hydrologic modification, landfill leaching, urban living, and mining. It is estimated that 65 percent of the impaired water uses designated for our rivers and streams, are caused by nonpoint sources; 27 percent from point sources and 8 percent either from natural or unknown sources (USEPA, 1987).

Water quality problems from nonpoint sources of pollution occur in every state in the nation and 47 states reported agriculture as the largest source category (USEPA, 1987). Runoff from urban areas is the next largest source and it is reported by about 35 states. Other sources include construction and mining activities with about 20 states reporting problems in each category.

Nonpoint sources (NPS) provided 76 percent of water use impairment of lakes and 45 percent of estuaries of the nation. Municipal and industrial point sources were reported at a lesser degree (USEPA, 1987). Contributions by source vary with the type of land use, population, and terrain. For example, nonpoint sources were estimated to cause 97 percent of the impaired water uses in Iowa, while Alaska estimated that 85 percent of the impaired uses were caused by industry (USEPA, 1987).

Water use impairments are extensive, but, most water body uses meet their designated uses. Nationally, about three fourths of the designated uses of our rivers, streams, lakes, and estuaries meet state water quality standards (USEPA, 1987 and ASIWPCA, 1985). It is anticipated that only about 7 percent of these water bodies have impaired uses; the balance is partially impaired.

States reporting impaired water uses (ASIWPCA, 1985 and USDA, 1987) indicate that agriculture is one of the large NPS activities with 34 percent of the states reporting severe pollution, 43 percent reporting moderately severe pollution, and 17 percent reporting minor pollution. Other significant sources of NPS pollution problems, reported by states, are urban activities at 23 percent severe, 43 percent moderately severe and 26 percent minor. Land-based water disposal is reported to cause 32 percent severe pollution, 21 percent moderately severe, and 28 percent minor. Agriculture is a significant source of NPS pollution on a national basis but not the only significant source.

Nonpoint source parameters, most widely reported by the states as impairing surface waters, are turbidity, nutrients, bacteria, toxics, and concentrations of dissolved oxygen or biochemical oxygen demand (BOD) (USEPA, 1987). All of these parameters may come from an agricultural source. They are the parameters that describe the agricultural pollutants of sediment, animal waste, salinity, nutrients, and pesticides (Soil Conservation Service, 1983).

The effect of pollution on river and stream fisheries concern most Americans. Surface water quality problems that adversely affect fisheries were reported for 56 percent of all of our nation's streams and for 65 percent of perennial streams (Judy, et al., 1984 and USDA, 1987). Nonpoint sources of pollution were estimated to degrade the water quality of 38.4 percent of perennial streams and 49.6 percent of all streams. Agricultural nonpoint sources were estimated to adversely affect 29.5 percent of perennial streams and 37.6 percent of all streams. However, by comparison, natural sources were estimated to affect 22.2 percent of perennial streams and 22.5 percent of all streams (Judy, et al., 1984 and USDA, 1987). Industrial point sources were estimated to affect 4.5 percent of perennial streams and 6.9 percent of all streams.

Turbidity, frequently caused by sediment carried in water, was estimated to be the principal fishery pollutant and affected 42 percent of perennial streams and 34 percent of all streams (Judy, et al., 1984 and USDA, 1987). Many of the substances that adversely affect stream fisheries have an agricultural source. Cropland contributes 42 percent of the sediment, 93 percent of the pesticides, 31 percent of the phosphorous, and 42 percent of the BOD concentrations (Gianessi, et al., 1986 and ASIWPCA, 1984). In contrast, point sources are estimated to contribute 15 percent of total phosphorus and 10 percent of the BOD.

Parts of the United States that potentially contribute the greatest amount of agricultural NPS substances that may pollute surface water quality were appraised by the U.S. Department of Agriculture (USDA, 1987). Generally, the distribution of agricultural NPS pollution was found to be widespread nationally. However, there is a high potential for degraded water quality where cropland agriculture is dominant such as in the Cornbelt. Humid regions that have extensive runoff, concentrations of livestock and poultry, or where pesticides

and nutrients are frequently used also have a high potential. Salinity problems were found where natural salts from geologic sources were readily available and irrigation is commonly practiced.

Although water pollution may be widespread nationally and regionally, the local potential for water quality problems is quite variable. Local combinations of land use, management, soil characteristics, and geologic materials cluster water quality problems while other watersheds in the same geographic area may be relatively free of pollution. Clusters of pollution within watersheds result from a combination of land use and management activities with specific types of soil, water, and geologic resources.

The location of problems with ground-water quality has a somewhat different signature than with surface water, although there is also a strong relationship to land use, management, and natural resources. It is necessary to have an aquifer to have a ground-water problem and they do not occur everywhere. Although common nationally, large volume aquifers are usually found in areas underlain by unconsolidated geologic materials; especially glacial deposits. Aquifers that yield less ground water are more common but their quality is related to similar physical factors as large-volume aquifers.

Demand for drinking water is population dependent although areas where ground water supplies a high percentage of drinking water are frequently located where populations and precipitation are low (USEPA, 1987). Costs for ground-water development are frequently less than for surface water, and wells are typically used in rural settings. Ground water also serves many large urban centers and supplies 50 million people; 31 million people from public wells, and 19 million people from private wells (Lee and Nielsen, 1987). Rural populations that are served by ground water total 43 million people, but only about 5.3 million of these people actually live on farms (Hostetler, 1988). Consequently, concerns for ground-water quality are universally shared among the rural and urban populations.

Ground-water contamination is generally found where an aquifer is vulnerable to surface contamination. These areas seem to reflect the economic activity and geologic setting. Sources of ground-water contamination, most commonly reported in urban areas by states, were septic tanks and underground storage tanks (USEPA, 1987). Their contribution to ground-water pollution was 89 and 83 percent respectively. Agricultural activities were reported by about 79 percent of the states as a source of ground-water contamination (USEPA, 1987). A concentration of agriculturally related ground-water problems is noted in the Cornbelt, Great Plains, Lake States, and portions of the Northeast and Southwest, where agricultural activities are common (Lee and Nielsen, 1988). Other pollution sources are surface impoundments, road salting, and mining. Ground-water contamination may potentially occur in half of the counties in the conterminous United States (Lee and Nielsen, 1988).

Factors Affecting the Location of Surface or Ground Water Quality Problems

The location of surface and ground-water quality problems is related to the interaction of human activity and natural resources. The first requirement

that is needed to have a water quality problem is to have a significant water body or aquifer. This water resource must then be characterized by some factor that would be affected by land use and management such as through direct precipitation, ground-water recharge or surface water runoff. Precipitation, except when in short supply or in locations affected by atmospheric deposition, may not be an agricultural concern. Runoff or recharge that is affected by human activity may create a pollution concern because people use the land, people use the water, and people want to use more water for economic purposes. The type and intensity of land use becomes a dominant pollution factor, because the waste products produced by the human activity may become a water-degrading substance. If these substances do not enter the water in excess quantities and impair its use, there is no water quality problem.

The human factor also determines the impaired water quality. Water quality is defined on the basis of human use through legal statute; usually state standard and law. The water quality for the designated use may also be a sensory perception of the user.

The opportunity to manage water use to maintain its quality may be a remedial, human factor. Although different patterns of land use and management may potentially produce a certain type of waste substance, whether agricultural, industrial or municipal in source, no specific human activity is universally bad. The management of water and waste may determine the water quality. Production agriculture, for example, may be the dominant economic activity in the Cornbelt but land and water management by the land user may prevent pollution of the water resource. The opportunity to carry out such a nonpolluting enterprise as agriculture, is a function of the individual production unit. It is based on its ability to manage compatibly their soils, geologic materials, and water resources. The wide-spread national problem of surface and ground water quality, thus, relates back to the individual manager.

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WATER QUALITY LEGISLATION AFFECTING AGRICULTURE

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Resources for the Future

Farming has traditionally been viewed as an activity consistent with stewardship of land, deference to wildlife, and harmony with nature. Perhaps that is an accurate picture. But public perception is changing; rejecting some or all of the traditional view of farming as perfectly compatible with environmental quality.

The American public increasingly sees agriculture as a source of environmental contamination; the farmer as the problem instead of a steward of nature. As a consequence, the pace of environmental legislative activity affecting farmers has accelerated. Here I review why, where, and how water quality legislation, in particular, may affect the future of American agriculture.

Farming's Effects on Water Quality Have Become More Apparent

Over the past ten years, evidence implicating agriculture as a major contributor to water quality problems has rapidly accumulated. We now know that:

- * Cropland is the source of sediment causing annual damages in excess of \$7 billion from siltation of navigation waterways, water storage facilities, drainage ditches, and irrigation canals, and interference with water-based recreational opportunities (Ribaudo);
- * Agricultural runoff was found to contribute one-fourth of total nutrient loadings and 40 percent of total sediment entering 78 major estuarine systems; high rates of agricultural pesticide runoff were found in 21 of the 78 estuaries, the source of our commercial marine fisheries (Crutchfield);
- * More than 17 different pesticides have been detected in ground water in 23 different States (EPA, 1986); and
- * As many as one-third of the counties in the United States may have groundwater supplies that are vulnerable to contamination from agricultural chemicals (pesticides and fertilizers) applied to overlying cropland (Nielsen and Lee).

Over 97 percent of rural Americans and nearly half of the total U.S. population rely on ground water for drinking and household use. Thus, over 50 million people are potentially affected directly by ground water contamination by pesticides or fertilizers (Nielsen and Lee).

The Public is Concerned

Little is known about the human health effects of pesticide and nitrate concentrations typically found in ground water. Our ability to detect and measure chemical contamination surpasses our ability to understand and evaluate long-term health risks. But public concern does not await formalization of scientific opinion on this issue. People resent unwitting exposure to materials that carry any risk, albeit uncertain, through their food or water supplies.

Public opinion polls bear out this increasing concern. A 1986 Harris poll found that 93 percent of those surveyed nationally feel that water pollution is a serious environmental problem, 86 percent feel that drinking water contamination is a serious problem, and 69 percent are opposed to cutting Federal funds for environmental protection in order to reduce the deficit. Batie reports the results of another recent national survey which found nearly 60 percent of respondents agreed with the statement, "Farmers use too many pesticides," and only 23 percent were willing to accept as safe drinking water that has only "small amounts of chemicals" and meets government standards. Lest one believe this opinion reflects the views of a paranoid urban population, it should be noted that a survey of the general public in Iowa found that 52 percent of respondents saw farm chemicals as the largest threat to their drinking water, and 78 percent would favor placing restrictions on the amount of pesticides or fertilizers farmers could use, even if that meant that crop yields would decline (Pins, as reported by Batie).

Legislation Reflects Public Concerns

The increasingly popular view that clean, safe water is as important or more important than agricultural productivity has placed pressure for change on the public institutions responsible both for environmental and agricultural policy. As a result, there is now an unprecedented degree of legislative and administrative activity, at Federal and State levels, geared towards water quality.

At the Federal level, more than 2 dozen agencies and offices have responsibility for some aspect of water quality. Federal actions and initiatives include recent reauthorization of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Endangered Species Act, both with minor modifications to enhance their effectiveness. Of special significance to agriculture is the Water Quality Act of 1987, an amendment to the Clean Water Act which places new focus on nonpoint-sources of water pollution. Agriculture is considered a major nonpoint-source.

Implementation of the 1987 Water Quality Act is well under way by the Environmental Protection Agency (EPA). Section 319 of the Act requires each State in the Union to:

1. Assess the nonpoint-source problems in the State, and submit to EPA a list of all water sources affected by nonpoint-source pollution, along with the source of the problem, including agriculture, where appropriate; and
2. Prepare and submit plans for programs, directed at identified sources, to prevent anticipated or resolve present nonpoint-source water pollution problems.

Preliminary plans are currently being reviewed by EPA. Most States have identified agriculture as an origin of nonpoint-source pollution in some watersheds. Thus, Federally-required State management plans are likely to contain initiatives aimed at reducing soil erosion from cropland, animal waste runoff from farmland, and/or pesticide and fertilizer contamination of surface and ground waters. The States are free to propose any mechanism for achieving water quality goals, including, at their discretion, taxes, subsidies, regulations, or voluntary guidelines.

In addition to its authority under FIFRA, the Endangered Species Act, the Water Quality Act, and related legislation (Safe Drinking Water Act; Resource Conservation and Recovery Act; and Comprehensive Environmental Response, Compensation and Liability Act), EPA has proposed a comprehensive, national strategy for reducing pesticide contamination of ground water (EPA, Dec. 1987). The proposed program, now receiving public comment, would: (1) establish maximum pesticide contaminant levels in drinking water sources as reference points to guide States in determining when contamination is approaching unacceptable levels; (2) rely on States to develop both effective contamination prevention plans and responses for action if and when maximum contaminant levels are reached; (3) assist States in monitoring pesticide levels and developing and implementing programs; and (4) include provision for Federal intervention if State reactions are insufficient to protect drinking water. The proposed pesticide strategy reflects a Federal-State approach that emphasizes voluntary compliance with suggested guidelines, but provides a backup regulatory response if State, local, and individual efforts fail to meet established water quality criteria.

Many States already have water quality legislation in place. Over the last 5 years, in particular, State governments have been active in proposing, passing, and enforcing legislation concerning soil conservation, surface and ground water protection, and pesticide use. According to reports by the Fund for Renewable Energy and the Environment (1987 and 1988):

- * A total of 21 States have independent erosion and sediment control laws. Twelve States include provisions for enforcement or penalties associated with failure to comply with legislated soil loss limits or management practices;
- * A total of 26 States have legislated restrictions on land use to reduce the threat of ground water contamination;
- * Connecticut, Maryland, Virginia, and Wisconsin have implemented State programs specifically to reduce nonpoint-source water pollution.

- * All but 7 States have programs to monitor pesticide levels in surface and/or ground waters; and
- * A total of 11 States have banned the use or certain use practices associated with specific pesticides that are not restricted under Federal law.

The policy instruments employed by States to implement this legislation run the gamut from programs that encourage adoption of beneficial management systems, to laws that limit land use or restrict the use of specific potential water contaminants. Many State programs directly address agricultural-source nonpoint water pollution.

Because the costs of preventing agricultural-source pollution are less than the costs of cleaning up contaminated water, especially ground water, water quality legislation is increasingly directed at the source of the problem. In the case of agriculturally-related water quality problems, farming is the source of the problem.

Legislation Can Affect Farming in a Variety of Ways

The patchwork quilt of Federal and State water quality initiatives has resulted in implementation of a wide variety of different approaches to reduction of agricultural-source pollution -- all aimed, in some way, at farmers or farming.

Both the Federal government (EPA, U.S. Geological Survey, USDA, and others) and many States have launched extensive programs to monitor, map, and measure the significance of agricultural-source contaminants in water sources. Some States have moved ahead to implement voluntary or regulatory programs directed at agricultural sources. The following examples illustrate the range of different approaches.

- * Wisconsin's Department of Natural Resources works with local governments to develop technical assessments and implementation plans that identify critical problem areas within watersheds and farmland. The State cost-shares with farmers for the installation of approved methods of controlling identified pollutants.
- * Iowa's Groundwater Protection Act of 1987 will raise an expected \$65 million for use in monitoring, reducing, and conducting research concerning agricultural chemical contamination of water. A third of the funds for this program will be raised by taxing agriculture. Fertilizer sales taxes are imposed, and pesticide dealer license fees and pesticide registration fees are increased.
- * Connecticut's Potable Drinking Water Law makes any identified water polluters liable for all resultant damages. Farmers are not exempt from this liability, even if they use unrestricted pesticides according to label recommendations. Thus, ground water damage from agricultural chemicals could require farmers to pay for clean up or to provide replacement sources of safe drinking water.

- * California's Proposition 65 makes it illegal for farms or other businesses employing 10 or more people to knowingly contaminate water with any chemical identified as posing a cancer or birth defect risk. The burden of proof that there is no risk is placed on the user of the identified materials, some of which are agricultural pesticides. Stiff fines or jail sentences can be imposed.

The last three examples illustrate varying degrees of the increasingly common incorporation of restrictions or penalties that make farmers pay for water quality protection.

Regulations Pose New Constraints on Farmers

Agricultural chemical taxes and restrictions, required adoption of new production practices, with or without government cost-sharing, and liability for water pollution damages all have one thing in common: they raise the cost of production for some or all farmers. The distribution of farmers whose costs are increased depends upon the form of the legislation. While fertilizer taxes spread the cost of water protection efforts across all farmers, targeted restrictions on the use of certain farm chemicals near vulnerable water systems raise costs only for those farmers who are located in specific areas and whose agricultural chemical use practices or soil types are among those identified for targeting. Legislation which through voluntary or regulatory action results in reduced use of fertilizers or common pesticides may also reduce crop yields.

The emerging pattern of variety in legislative approach from State to State, and the tendency for States to provide differential protection of specific water sources most likely to be used for drinking water, means that farmers in certain localities, States, or regions will be more affected by water quality legislation than will others. This suggests a change in the competitive advantage that some farmers currently enjoy in the production of certain commodities.

There are many things that individual farmers can do to minimize the effect that new or forthcoming water quality legislation may have on their incomes (Crowder, Ribaldo, and Young). The relationship between soil erosion and surface water quality suggests that farmers can reduce their vulnerability to legislation targeting surface water pollution by increasing the effectiveness of their soil conservation efforts. Federal and State assistance is available to technically and financially support adoption of soil conservation practices. Furthermore, the Conservation Reserve Program offers cropland owners and operators the opportunity to receive annual rental payments for restricting crop production on "filter strip" areas near vulnerable water bodies.

Farm income losses from water quality legislation may also be partially offset through the adoption of integrated pest management, crop rotation, and "low input" agriculture practices that substitute land, labor, or management skill for agricultural chemicals. USDA and State research into practical, economical management systems will make important contributions to the ease with which farmers can adapt to the constraints imposed by water quality legislation.

Farm-Level Effects Translate to Agricultural Sector Change

Despite prophylactic efforts, it is clear that restricting land use and agricultural practices to protect water quality will restrict the income of some farmers. If a large number of producers of a specific commodity experience yield losses and/or cost of production increases as a result of water quality legislation, the market for the commodity will also be affected. The farm sector could indirectly benefit from reduced commodity surpluses and higher commodity prices, but individual farmers and consumers would pay the price.

As the prevalence of stricter environmental legislation increases, tradeoffs among the following sector-wide consequences will need to be considered:

- * Higher commodity and consumer prices.
- * Lower direct government expenditure for commodity price support.
- * Changes in farm income distribution, including:
 - higher feed costs and lower income for livestock producers;
 - higher aggregate income from crop production, but with;
 - reduced income for producers directly affected by restrictions.
- * Reduced demand for the services of upstream agricultural services (farm input industries).
- * Less business for downstream agricultural industries (eg: food processing).
- * Improved environmental quality, including safer drinking water for farm households and livestock.

Farm Policy Has a Role to Play in the Adjustment

Agriculture's contribution to water quality problems could be substantially reduced by modifying current farm programs to either or both: (1) sever the link between direct farm income support payments and crop production levels; and (2) target long-term acreage retirement schemes to areas of the country with greatest water quality vulnerability.

Traditional farm programs inadvertently encourage agricultural production patterns that lead to water quality problems (National Center for Food and Agricultural Policy). The adverse, but indirect effect of commodity programs on water quality is a consequence, primarily, of the fact that price and income support payments are linked to production levels for specific commodities. Commodity programs differentially encourage intensive production of crops with high erosiveness and high agricultural chemical requirements, encourage increased levels of fertilizer and pesticide application, and discourage diversification of farm operations for employment of low input agricultural systems.

The conservation provisions of the 1985 Food Security Act (FSA), including the Conservation Reserve Program (CRP), Sodbuster, and Conservation Compliance provisions, have the potential to partially offset these adverse effects by reducing soil erosion. Indeed, by retiring nearly 28 million highly erodible cropland acres to date, the CRP is proving highly successful in reducing soil erosion. Plans are proceeding on schedule for Conservation Compliance to kick in, little more than a year from now, assuring soil conservation on highly erodible land that remains in production and is owned by individuals who wish to retain USDA program benefits.

On one hand, the early signs and expected long-run success of the FSA conservation provisions has made them models for farm policy proposals aimed even more directly at reduction of agricultural-source pollution. For example, the CRP has not, to date, enrolled a large portion of land in areas most subject to groundwater contamination from agricultural chemicals, but the program could be modified or expanded to specifically target those areas.

On the other hand, the FSA conservation provisions address the symptoms rather than the cause of incidental conflict between commodity policy and environmental quality. Upcoming farm bill debate with respect to environmental quality is likely to focus on the tradeoffs involved in revising commodity programs to improve their consistency with environmental quality goals, versus expanding the secondary, environmentally-targeted provisions enacted to resolve the problems created by current inconsistencies.

Outlook and Options

The outlook is for increasing restrictions on agriculture from continued legislative initiatives addressing growing public concern for water quality. Because the EPA plans to have completed its current, national tests for agricultural chemicals in well water by late 1989 or early 1990, public concern is likely to peak at the same time the 1990 farm bill debate is climaxing.

Continued public and private sector research on new technologies and farm practices more compatible with water quality protection should, in the long-run, resolve many of the current conflicts between agricultural production and environmental quality. In the meantime, options are available to minimize the costs of sectoral adjustment to new constraints. High rates of participation by farmers in voluntary and visible efforts to reduce the threat of water pollution from agricultural activities could relieve some of the current pressure for restrictive regulation. Conscious, careful modification of current commodity and related farm programs could generate environmental benefits large enough to forestall or reduce the need for separate environmental legislation.

If voluntary actions are insufficient and agricultural legislation does not recognize and address the environmental consequences of agricultural production and current farm policies, then the pace of water quality legislative actions affecting agriculture is likely to accelerate. Farmers and farm policy decision makers now face a choice. They must either take independent action to incorporate water quality concerns into their decisions, or prepare to face externally imposed constraints. Modifying farm programs to allow for joint achievement of environmental and agricultural policy goals may be less traumatic for the agricultural sector than the alternative adjustment to additional, restrictive water quality legislation.

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THE CONSERVATION RESERVE PROGRAM: PROGRESS AND PROSPECTS

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With considerable justification, the Food Security Act of 1985 has been called the most significant conservation legislation since the 1930s. At the heart of the conservation title is the Conservation Reserve Program, without doubt the most ambitious long term erosion control program ever enacted. Its goal is to place 40-45 million of our most highly erodible land in grass and trees by the end of 1990.

After results of the sixth signup were tallied last spring, more than 25.5 million acres were enrolled under 10-year contracts -- well over half the 5-year goal, and putting us on target with the yearly goals laid out in the 1985 Act. When bids accepted from the seventh signup are announced in mid-December, we expect to have about 28 million acres enrolled in the program. And, we will have achieved these results at a reasonable cost to the government. Through the sixth signup, which is the last signup for which complete data are available, the average annual rental cost is \$48.38 per acre, which amounts to a total annual cost of about \$1.2 billion in rental payments.

Placing the 25.5 million acres now enrolled in permanent cover will mean estimated soil savings of over 530 million tons annually, as average rates of erosion on land in CRP decline from 22.4 tons per acre per year to 1.6 tons. The largest concentrations of acres meeting the erodibility criteria are in the Northern and Southern Plains, Mountain States and the Corn Belt, areas which have shown high interest in the program.

Nationwide breakdowns by cover practice show producers are devoting nearly 15 million acres to tame grasses, nearly 7 million acres to native grasses, and over 1.5 million acres to trees. Participants also are encouraged to install needed diversions, windbreaks, waterways, wildlife plantings, and other conservation practices.

We are encouraged by producers' continued strong interest in the program, particularly in light of drought conditions this past summer. We also were gratified by the results of a poll conducted by the American Farmland Trust last year that showed more than 95 percent of the enrolled producers were satisfied with the program.

On the commodity side, all of the enrolled acres will be retired from producing crops for the 10-year contract period. In addition, so far over 16.3 million acres of commodity bases, allotments and quotas are not receiving deficiency

payments or price support benefits. By commodity, that includes 7.6 million acres of wheat base, 2.9 million acres of corn base, and nearly 4.8 million acres of other feed grains -- barley, sorghum and oats. On the base acres retired so far, we estimate more than \$0.5 billion will be saved each year from reduced CCC commodity program expenditures -- savings which substantially reduce the cost to the government for CRP rental payments. Additional savings for commodity programs will result from higher crop prices and lower deficiency payments.

The Conservation Reserve is proving to be a cost-effective resource conservation program, and we are pleased with its overall progress. But that does not mean there are no problem areas requiring attention, and that there are no questions about our continued progress as we look ahead to 1990.

We clearly are disappointed in the record so far on tree plantings. The law specifies a goal of 12.5 percent of the CRP land in trees, and to date only 6 percent of the total CRP acreage has been enrolled in tree plantings, mostly in the Southeast. To encourage more tree acres where suitable, last year we modified the erodibility criteria from 3T to 2T, and the predominance rule from two-thirds to one-third of a field, for acres to be planted to trees.

After these new standards went into effect, the percentage of acres enrolled for trees rose to nearly 12 percent in the sixth signup. But we have more work to do if we are to meet the goals of the 1985 Act.

To enhance CRP's impact on water quality, program regulations also were amended to make filter strips eligible for the first time in the sixth signup, regardless of erodibility. In many areas, this could be a cost-effective way to boost CRP's water quality benefits. Grass, forbs, shrubs and trees will be established on the 16,000 filter strip acres contracted so far. This acreage equates to over 1,300 miles of streambank or river protection.

The offsite damage to water quality from eroding soil is a major problem in many areas, whether the damage stems from sedimentation, chemical runoff, or salinity. CRP has done a good job in attracting acres in the West, where salinity is the dominant water quality problem. However, the program's impact on water quality in other regions, where relatively fewer eligible acres are enrolled, is not as great. So we are taking a harder look at increased targeting of the program to address water quality concerns where it is practical and cost-effective to do so. Enrollment of filter strips is but one means to this end.

In the Chesapeake Bay region, for example, we worked with the Environmental Protection Agency and the Chesapeake Bay Commission regarding the role CRP can and should play in water quality improvements in the Bay area. What we did there was realign bid pools in Maryland, Pennsylvania and Virginia so that counties in the Chesapeake's drainage area are now grouped together for bidding purposes. This has the potential for attracting more acres into CRP in that area -- and for increasing CRP's impact on water quality.

We also are encouraging state and private organizations to work with USDA and farmers by providing "piggyback" programs to help expand enrollment in areas where high land values make it difficult for the federal government alone to do

the job. Other agencies could help cost-share cover establishment, or they could offer bonus payments to supplement USDA's rental rates. ASCS is working now with the Maryland Department of Agriculture to develop a piggyback program for counties in the Chesapeake drainage area. We'll continue to pursue such opportunities in the future.

These are measures which are already in effect. But as I mentioned, we need to explore other options as well if we are to meet the goals set for CRP, and to maximize the program's benefits on and off the farm.

Several new initiatives now under consideration specifically address both the issues of tree plantings and water quality improvements. As in the case of filter strips, these proposals would expand eligibility for the program by permitting enrollment of certain acres regardless of their erodibility.

One proposal would allow farmers to enroll fields with evidence of scour erosion resulting from out-of-bank flows of water -- provided the land is planted to trees. Sediment from scour erosion is normally delivered directly to streams. Entering selected overflow cropland areas into CRP and planting it to trees will reduce the degradation of streams from sediment and associated pollutants, and potentially reduce future flood damage requiring federal assistance. We estimate this proposal would make an additional 3 million acres of cropland eligible for CRP.

A second proposal would permit farmers to bid into CRP wetlands cropped in any two years from 1981 through 1985, with a buffer strip, and reestablish them in natural vegetation. That would be primarily hardwood trees in the Mississippi Delta area and in shallow water areas in the prairie pothole region of the Northern Plains.

Without this rule change, cropped wetlands would qualify for the conservation reserve only if they are included in an eligible highly erodible field. Continued farming of wetlands diminishes their public value as areas for bottomland timber production, flood water storage, improvement of surface and groundwater quality, and for nesting habitat for waterfowl and other wildlife.

We estimate this proposal would make an additional 8 million acres eligible for entry into CRP. A significant portion are pothole wetlands in the Northern Plains, but the majority of these acres are in the floodplains of the Mississippi and other major rivers. Approximately 1.8 million acres are in Mississippi, Arkansas and Louisiana. Before being cleared for crop production, they were productive bottomland hardwood forests. Inclusion in CRP would allow these floodplain forests to be restored.

Another option we are reviewing concerns windbreaks, already an approved practice for CRP. Here we are considering a procedural change in our cost-share policy to include supplemental irrigation as an eligible component of this practice. We feel this would provide additional incentive for farmers to install windbreaks on their CRP acres.

I should add that our increased emphasis on water quality and other off farm

benefits through CRP has been extended as well to the Agricultural Conservation Program. In FY 1988, \$8 million in ACP cost-sharing funds were targeted for 24 water quality demonstration projects throughout the country. We anticipate that at least the same amount will be earmarked for water quality projects in the current fiscal year.

As we look into the future, a logical question is whether we think CRP will achieve its 40-45 million-acre goal and meet the objectives envisioned for the program. I would say today that I believe we will meet our 40-million-acre target, and possibly exceed it. But several factors will influence CRP participation down the road.

One factor is the conservation compliance provision of the 1985 Act, which was designed at least partially as an incentive to place highly erodible land into CRP. As producers become more aware of the impact of this provision on their individual operations -- and the deadline for having a conservation plan is only a year away -- we expect it will provide a strong stimulus for many to enter the conservation reserve. For many producers, CRP will offer payments to do what they ultimately may be required to do to be in conservation compliance. For others, compliance may be achieved relatively inexpensively through better management and tillage practices.

However, this incentive will only work if producers get their conservation plans developed early enough to make an informed decision. If they wait until the last minute, it may be too late to enter the reserve. Government and private agencies need to continue their information efforts to urge producers to submit their requests for plans to the Soil Conservation Service in plenty of time.

A restrictive factor on enrollment is its limitation to no more than 25 percent of the cropland in any county unless a waiver is granted to exceed the limit. Once a waiver is granted for a particular signup, that county may not hold future signups. And counties nearing the limit, by within 1 percent or 1,000 acres, may recommend that they hold no more signups if farm and business communities are not in favor of a waiver.

This provision was included in the law to minimize the negative impacts that long term land retirement could have on rural economies. So far 51 counties, mostly in the Plains and Mountain States, have been granted authority to exceed the limit. As time goes on, however, more and more counties, especially those in high participation areas, are going to find themselves up against the acreage limitation.

While back, we estimated that when consideration is given to this limitation, the number of eligible acres nationwide would be reduced from 101.5 million to around 70 million. To expand the amount of eligible acreage, dual erodibility criteria were implemented in 1987.

A third factor that could influence our achieving the 40-45 million-acre goal is the rate of return CRP offers producers relative to other land uses. By rate of return, I mean the ratio of the maximum rental rate in a bid pool to the average land value in the pool.

An ASCS analysis of enrollment patterns through the first five signups indicates that participation rates in CRP generally reflect the rate of return that landowners receive from the program. About 58 percent of the land that has come into CRP has a rate of return greater than 10 percent. Much of this acreage is in the Mountain and Plains States. However, where rates of return are significantly lower -- which we find in areas with high land values such as the Corn Belt and the Northeast -- the percentage of eligible acres enrolled declines dramatically. Where rates of return are less than 5 percent, only about 4 percent of the eligible acres have entered the program.

The study indicates that while there is a lot of eligible land potentially available for CRP, the amount of eligible land where CRP offers rates of return of 10 percent or more is much smaller -- particularly when the 25-percent limitation factor is considered.

Insofar as rates of return are concerned, then, the analysis suggests we could have trouble reaching the 40-45 million-acre goal. To attract more eligible acres into CRP in areas where land values are high, additional incentives were provided in the sixth signup when maximum acceptable rental rates were raised in 30 bidding pools in the Corn Belt and Mid-Atlantic States. Without such program changes, our analysis suggested we could expect a declining percentage of eligible land entering CRP, with enrollment peaking at about 35-36 million acres.

In some areas, of course, especially where urbanization affects land values, it is just not economically feasible to go after these acres -- not, at least, without some sort of "piggyback" arrangement with other public and private agencies. However, in other areas, such as certain bid pools in the Dakotas, we have seen relatively small increases in maximum pool rates produce significant increases in enrollment.

We are going to be examining the impacts of all these factors as we check our progress in upcoming signups. We are committed to making every effort to reach the goals set for CRP in a cost-effective manner. We will be exploring a number of options, and will be implementing a variety of strategies targeted to different areas and different problems. This process is already well underway.

A full-strength, 40-45 million-acre conservation reserve will offer significant and, we hope, lasting environmental and economic benefits. In the long run, we anticipate the close linkages between the reserve and the erodible land provisions of the 1985 Act will encourage many producers to keep some of their CRP acreage in permanent cover beyond the duration of their contracts.

When CRP contracts terminate after 10 years, most of the fields that were enrolled will automatically be subject to conservation compliance. Consequently, they will require continued conservation management at producers' expense if farmers choose to return these fields to production and enroll them in the commodity programs.

How much land returns to crop production, and how much is put to alternate uses

such as grazing, largely will depend on market conditions and commodity program provisions in the mid-1990s and beyond. But certainly, we expect tree acres to stay out of production for longer than 10 years, and likely some grass cover will remain in place for some time. This raises the question of what incentives we can use to keep erodible land in permanent cover, and to build on the erosion control and water quality benefits of the cover practices that have been established. Should we seek authority to renew or extend existing contracts -- perhaps even before they mature? Will funding be available? These questions and a host of others regarding the future of CRP are likely to be addressed within the context of the next farm bill.

But even if markets are booming in the mid-1990s, land returned to production will be covered by safeguards that were not in place during the 1970s. Public awareness and concern for the conservation of our productive soil and water resources are also at higher levels. If these attitudes hold, and if the safeguards now in place are administered properly, the legacy of the 1985 Act will be a solid foundation for resource protection and future growth.

ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

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IMPLEMENTING THE "CONSERVATION COMPLIANCE," "SODBUSTER," AND "SWAMPBUSTER" PROVISIONS OF THE 1985 FARM BILL

Wilson Scaling
Chief, Soil Conservation Service
U.S. Department of Agriculture

The Soil Conservation Service (SCS) is pleased that America has put such a high priority on soil and water conservation. We're proud to have the technical service role in implementing the conservation provisions of the 1985 Farm Bill.

Milt Hertz has already explained where we are under the Farm Bill's Conservation Reserve Program. I'll concentrate on the Highly Erodible Land Conservation provisions, known as "conservation compliance" and "sodbuster," and on the Wetland Conservation provision, known as "swampbuster."

Conservation compliance applies to highly erodible cropland that has a cropping history going back to the years 1981-85. To keep this land in production — and still remain eligible for USDA program benefits — the farmer has to develop a soil-conservation plan. The plan must be approved by the local conservation district by December 31, 1989. All the conservation practices in the plan must be fully implemented by December 31, 1994. The only exception to these deadlines applies where SCS has not completed a soil survey of the farmer's land. In that case, the farmer has until two years after the survey to develop a plan.

Sodbuster applies if you want to cultivate highly erodible land that was not in production in the period 1981-85. Under sodbuster, you have to implement a conservation plan immediately — if you want USDA program benefits, that is.

Swampbuster is the wetlands equivalent to the sodbuster provision. Swampbuster says that if you convert bonafide wetlands to cropland, and plant that cropland to an agricultural commodity, you lose your benefits from USDA. It does not, however, withhold USDA benefits from farmers who simply wish to maintain drainage systems that existed before the 1985 Farm Bill was passed.

From the start, we knew that implementing these provisions would be a tremendous task. We've estimated that by the time we're done we'll have made highly erodible land and wetlands determinations on about 1.8 million farms. We'll have developed or updated conservation plans, and implemented them, on over 140 million acres of highly erodible land.

Our number one job in SCS right now is helping farmers meet the conservation compliance deadlines. What we've accomplished to date is far and above expectations. As of October 1, 1988, conservation plans had been developed for 75 million acres, or 53 percent of the acreage needing plans (see table 1); and by the new year, we expect to have that up to 65 percent. We also finished 84 percent of the highly erodible land determinations on October 1, and we expect to have 90 percent done by the new year.

I credit our progress so far to two factors. The first is that farmers recognize the conservation planning process as being reasonable and practical. They have a broad range of choices of conservation systems that are considerate of local economic and environmental situations. And they make all the decisions affecting their own land.

Secondly, we've increased our productivity in SCS. We've done this in several ways:

- o We established priorities, making the Farm Bill work our highest priority in every field location in the country.
- o We've kept farmers well informed of their rights and responsibilities. This coming January we'll continue that effort with a direct-mail campaign aimed at all farmers who have highly erodible land but no conservation plan. The campaign will make sure they understand that they are the decisionmakers but that they have to move quickly before the deadline rolls around.
- o We've also increased productivity by accelerating computer automation in the agency.
- o We've made the Farm Bill effort a team effort, with unmatched cooperation between SCS and other federal and state agencies and the private sector:
 - Conservation districts are providing excellent help.
 - We work closely with the Extension Service, and all other USDA agencies involved, in getting out information on the Farm Bill. Work with the Extension Service led to a concept called "group planning," which brings neighboring farmers together to learn the basics of conservation planning. That saves our time and makes them feel a whole lot more comfortable with the process.
 - We're using private-sector contractors in some areas to get the planning job done.
 - Under an agreement with the U.S. Department of Education, we're helping Vo-Ag teachers involve their students in the conservation planning effort.
 - Volunteers who've joined SCS's Earth Team are helping also.

In conservation compliance, we're concerned about success in terms of more than just paperwork and numbers of plans completed. We're equally concerned about lasting conservation and making the conservation ethic a state of mind, adopted voluntarily. So, we're looking closely at why people do or do not adopt conservation technology. Helping us in that effort are the Extension Service, the 1890 Land-Grant Institutions, and Tuskegee University.

As we move from the planning workload to helping farmers install the practices, we'll be looking for more ways to increase our efficiency and

productivity. I know we'll continue to rely on a cooperative effort of many groups. Already we have an agreement to work closely with the Land Improvement Contractors of America in training conservation contractors.

The job of getting the plans fully implemented was done on nearly 22 million acres, or 15 percent of the affected land, as of October 1 of this year. But we're still analyzing the remaining applications workload. There are plenty of unknowns. Changes in landownership and operators could change existing conservation plans between now and 1995; so could technological changes (new crops, new management technology) and changes in agricultural markets

We have a ways to go yet in making wetland determinations. But over the past year we speeded up the process by adopting the use of special teams to go in an area and get the job done.

Overall, we're making good progress in implementing the '85 Farm Bill's conservation provisions. And, we've had few appeals come as far as the National Headquarters level. I'm convinced that we'll meet all of our goals as long as we use common sense ... as long as we continue being reasonable, fair, and practical in what we ask farmers to do.

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Table 1--Farm Bill Progress Summary as of October 1, 1988

State	Highly Erodible Land (HEL) (acres)	HEL Acreage Determinations	HEL Acres	HEL Acres
		Completed	Planned	Plans Imple- mented
		----- (% of total HEL acres) -----		
Alabama	1,741,073	93	70	13
Alaska	49,584	100	94	32
Arizona	988,424	100	73	59
Arkansas	512,160	99	53	23
California	1,858,996	64	32	6
Colorado	9,150,000	88	60	19
Connecticut	13,496	100	74	5
Delaware	10,423	100	74	16
Florida	221,947	74	54	29
Georgia	1,083,784	100	52	28
Hawaii	62,926	100	37	0
Idaho	3,537,500	78	50	16
Illinois	4,900,000	88	57	6
Indiana	2,687,829	100	48	11
Iowa	12,102,300	89	56	12
Kansas	12,962,291	100	68	10
Kentucky	4,200,000	74	39	14
Louisiana	230,000	78	43	18
Maine	150,000	73	54	31
Maryland	299,777	100	77	8
Massachusetts	16,452	93	70	14
Michigan	626,000	86	57	16
Minnesota	2,100,000	93	48	27
Mississippi	1,610,043	95	45	18
Missouri	5,959,774	98	39	19
Montana	13,700,000	57	51	16
Nebraska	9,709,152	87	53	20
Nevada	105,548	80	70	54
New Hampshire	5,952	100	72	9
New Jersey	70,687	100	62	4
New Mexico	1,400,000	90	53	19
New York	1,020,000	88	63	20
North Carolina	1,202,400	81	49	6
North Dakota	6,705,384	65	32	7
Ohio	1,709,662	100	58	8
Oklahoma	4,712,495	100	43	11
Oregon	1,927,000	93	43	27
Pennsylvania	1,581,963	100	59	8
Puerto Rico	4,000	56	31	27
Rhode Island	236	100	53	28
South Carolina	417,360	75	52	21
South Dakota	3,949,384	100	53	13
Tennessee	2,513,100	74	51	9
Texas	15,586,182	70	50	17
Utah	564,000	85	72	56
Vermont	70,602	100	62	11
Virginia	987,567	100	56	8
Washington	3,500,000	99	54	14
West Virginia	66,293	100	75	12
Wisconsin	3,292,288	72	39	22
Wyoming	804,500	90	70	46
TOTAL	142,680,534	84	53	15

ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

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A FARMER'S VIEW

Dean R. Kleckner
President, American Farm Bureau Federation

I gather that I am to present my personal view of conservation implementation --as we look ahead to the new crop year.

In the opinion of this Iowa corn and hog farmer who had a pretty lousy crop year, the drought was tremendously disruptive to conservation programs along with everything else on the farm.

Further, that it will take a while before we can sort everything out and return to what we consider to be a normal operation.

You need to know that right now, one of the best, most accurate indications of farmer outlook, including the status of conservation compliance and the attitude toward the conservation reserve, is being put together by the thousands of farmers and ranchers who are taking part in Farm Bureau's annual policy development process.

I am speaking of the opinions and policy efforts of hundreds of thousands of operating farmers who have been reviewing dozens of topics of farm and ranch concern including soil and water conservation and federal farm programs.

The action began several months ago in group discussions and in county policy-decision meetings. The action continues at state Farm Bureau annual meetings where national policies are sorted out and moved on to the American Farm Bureau Federation.

In mid-December, the presidents of each state will gather in national session to review, compile, combine, edit and, sometimes debate the tentative national policies --including those on conservation compliance and reserve. Their report in the form of tentative resolutions, goes before our national House of Delegates in early January.

I have gone over a small sampling --about a dozen state policy reports that are the first to come in. One of these first reports is very conservation-specific. It states that conservation should receive the highest national priority. It notes that the primary responsibility for wise land management rests with those who own and operate the land. It adds that local units of government, assisted by state and federal agencies, can aid in the discharge of this responsibility.

Other conservation-specific state resolutions will soon follow. Together, they will make up one important facet of Federal farm program policy.

Already, in this small sampling, there is some indication that farmers will be asking for a longer term, five year farm program and that rather than seeking new and dramatically different policy, they will very probably reaffirm most of what we now have.

In general, this favors a market-oriented agriculture with supply and demand, rather than government action, ultimately determining production and price. The policy calls for relaxing the requirements for entry in the CRP for those farmers who are already using good soil conservation practices.

The way things look now, I suspect our delegate body will again ask for conservation compliance modifications to recognize economic and technical feasibility, tradition or normal farming practices, local conditions and other such factors.

I know of the reports showing that the half-way mark in developing conservation plans has been reached and, that things are pretty much on target for the end of 1989 compliance. Even so, farm support remains for extending the deadline for conservation compliance plan approval from 1990 to 1992, with implementation extended from 1995 to 1997.

The need for this was expressed by farm people before the drought that has since greatly complicated matters and has skewed the thinking of thousands of farmers who operate in parts of the country that normally receive an abundance of rain.

At the risk of repeating myself --although agriculture has always been filled with stress and uncertainty, this has been an exceptionally tough year for many farmers and ranchers. Like flood and fire, drought is an emotional event. Altogether, it has not been a good year in which to discuss conservation action or philosophy, especially with operators who see themselves just two steps away from total disaster.

The cries of extreme farm discomfort were clearly heard in Washington. For many, the congressional drought-aid package made the difference between survival or extinction. I stress that word, survival.

Survival, not a profit. And, lest we forget, profits are what keep people farming. Profits provide the respite necessary to allow conservation planning. Profits assure a future where such plans have meaning.

Farm Bureau's farm income study committee recognized the direct link between erosion control and improved net farm income. The committee has encouraged the use of lower cost conservation tillage practices --an action program Farm Bureau sponsors.

No-till, low-till, ridge-till, mulch-till, strip-till and reduced-till --all of the variations have their place in the nation's conservation system. The last I heard, farmers now use some form of conservation tillage on over 88

million acres. This is almost a two-million acre increase in conservation tillage use over last year's figures.

In the process, farmers are learning many new things; among them that conservation tillage does not necessarily boost pesticide use as was once thought. About the same amount of pesticide is needed as with conventional tillage.

Again, the drought has made it hard, or impossible to evaluate the growth and effectiveness of conservation tillage practices. Just about everyone agrees it was a tough year for first-timers.

Questions have been raised about whether some rather spectacular no-till failures were management problems instead of something inherently wrong with the concept. Or, maybe it was just too dry for seeds to germinate no matter what type of tillage was used. Studies are being done to determine what really happened.

The answers are important to everyone. Without question, the 1990 farm bill will address a number of conservation and environmental issues that have been built into farm program expectations and law.

I would ease the minds of those who see conflict here.

I see no conflict between a healthful and clean environment, clean air, clean water, uncontaminated soils... and a sound agricultural economy.

There can be some very real differences of opinion between what is perceived as safe and practical versus someone's version of perfection.

But, national agricultural policy and national environmental policy must complement each other.

Striking the proper balance is the trick.

No one, no matter how environmentally over-involved, truly wants to see a failing, unprofitable, unproductive American agriculture... driven to the wall by societal demands.

That's insanity and it simply is not going to happen.

Farmers, Farm Bureau members, support an appropriate balance between conservation concerns and production needs in any new farm legislation.

We must, and will, also work to develop our own conservation and environmental agenda to deal with these issues.

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2 A PRELIMINARY EXAMINATION OF UNCOMMITTED FUNDS OF U.S. CONSUMER UNITS IN 1985

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Something is known about who saves, but not much is known about who has the potential for saving. Life cycle savings theory suggests a gradual increase in savings during one's earning years followed by dissaving at some point in later life.

Hefferan has shown that the decision to save is "...primarily influenced by income adjusted for an estimate of consumption needs, while the level of saving is influenced by total assets, housing tenure, and education" (Home Economics Research Journal, (11:1)Sept. 1982, p. 54).

On theoretical grounds, and to some extent based on empirical evidence, there is some reason to expect that families with less likelihood of saving -- or of saving less, at least -- might be young, less educated, blue or pink collar workers, larger families as well as households with an older head, retired, and reliant mostly on non-currently earned income sources. "Savers" might be expected to be more highly educated, have small families (perhaps no children, or whose children are gone from home), and in professional or managerial work roles.

The purpose of this study is to examine the pool of uncommitted funds from which savings might come. Uncommitted funds might be thought of as the potential savings pool. It is derived by subtracting total expenditures from after-tax income for 1985. This variable, "uncommitted funds," is examined in relation to the number in the consumer unit, age of the primary respondent, housing tenure, education of the primary respondent, and number of earners in the consumer unit.

Source of Data

Data for this study are from the on-going Consumer Expenditure Survey. In particular, the data are from the quarterly surveys covering the calendar year 1985.

The Consumer Expenditure Survey (CES) is now an on-going survey of expenditures by U. S. households conducted by the Bureau of Labor Statistics. The interviews are conducted with each of five panels each quarter. Each quarter, 20 percent of the total sample is new. Every quarter approximately 5000 respondents are asked to recall expenditures for the previous three months. Data presented here are for consumer units that were in each of the four quarters of 1985; thus the number is reduced to 832.

Findings

An examination of data cross-classified by the independent variables revealed linkages between levels of uncommitted funds and education, age, housing tenure, numbers in the consumer unit, and number of earners in the consumer unit. Distributions of consumer units by levels of uncommitted funds cross-classified by age, number of members, education, tenure status, and number of earners are shown in Tables 1-5.

Uncommitted Funds by Number of Earners

In Table 1, consumer units with no or one earner only are seen to cluster on the downside of the mean; that is, larger percentages (80.3 and 57.0,

TABLE 1. PERCENT OF CONSUMER UNITS (CUs) WITH SPECIFIED LEVELS OF UNCOMMITTED FUNDS BY NUMBER OF EARNERS

LEVEL OF UNCOMMITTED FUNDS	NUMBER OF EARNERS					
	0	1	2	3	4	5+
	-----PERCENT*-----					
LESS THAN -\$26,672 (<2 S.D.S.)	2.1	0.0	2.0	0.0	8.7	0.0
-\$26,672 TO -\$11,231 (MINUS 1 TO 2 S.D.S.)	4.9	6.0	7.8	15.9	17.4	12.5
\$4,211 TO -\$11,231 (-1 S.D.)	80.3	57.0	35.0	27.0	30.4	25.0
\$4,211 TO \$19,652 (+1 S.D.)	10.6	30.1	40.1	34.4	21.7	0.0
\$19,652 TO \$35,093 (PLUS 1 TO 2 S.D.S.)	1.4	5.6	11.6	15.9	17.4	37.5
MORE THAN \$35,093 (>2 S.D.S.)	0.0	1.0	3.4	6.3	4.3	25.0

$$\chi^2 = 161.830 \quad (P < .000)$$

*MAY NOT TOTAL 100.0 BECAUSE OF ROUNDING.

respectively) were found to have uncommitted funds between -\$11,231 to \$4,211 which is at or within one standard deviation of the mean (\$4211) for all consumer units. On the other hand, larger percentages of consumer units with 2 or 3 earners (40.1 and 34.9, respectively) were at or above the mean by one standard deviation (\$4211-\$19,652). The largest grouping (30.4 percent) of 4-earner consumer units was positioned within one standard deviation of the mean on the downside. Those with 5 earners in the consumer unit tended to have high levels of uncommitted funds, 37.5 percent holding uncommitted funds between one and two standard deviations above the mean (\$19,652 - \$35,093); 25 percent of the 5-earner consumer units were beyond the level defined by 2 standard deviations of the mean (uncommitted) funds greater than \$35,093). Thus, we do observe differences among consumer units in the level of uncommitted funds according to the number of earners. And, with the possible exception of 4-earner CUs, the tendency for larger percentages of CUs with more earners to have larger levels of uncommitted funds is observable and seems logical.

Number of Consumer Unit Members and Uncommitted Funds

Distributions of consumer units according to number of members and level of uncommitted funds are shown in Table 2. The distributions of level of

TABLE 2. PERCENT OF CONSUMER UNITS (CUs) WITH SPECIFIED LEVELS OF UNCOMMITTED FUNDS BY NUMBER OF MEMBERS IN CU

LEVEL OF UNCOMMITTED FUNDS	NUMBER OF MEMBERS				
	1	2	3	4	5+
	-----PERCENT*-----				
LESS THAN -\$26,672 (<2 S.D.S.)	0.5	0.8	0.7	4.1	2.1
-\$26,672 TO -\$11,231 (MINUS 1 TO 2 S.D.S.)	4.3	7.1	7.9	8.2	14.4
\$4,211 TO \$11,231 (-1 S.D.)	68.6	48.1	44.3	35.4	44.3
\$4,211 TO \$19,652 (+1 S.D.)	24.6	29.5	35.7	38.8	22.7
\$19,652 TO \$35,093 (+ 1 TO 2 S.D.S.)	1.9	11.2	7.9	10.9	12.4
MORE THAN \$35,093 (>2 S.D.S.)	0.0	3.3	3.6	2.7	4.1

$$\chi^2 = 73.138 \quad (P < 0.000)$$

*MAY NOT TOTAL 100.0 BECAUSE OF ROUNDING.

uncommitted funds by number in the consumer unit are seen to be somewhat more tightly grouped around the mean (i.e., \$4211) than one might expect -- note that the percentages of consumer units within one standard deviation of the mean tends to exceed an expected two-thirds in most categories, the exception being those with 5 or more members. Relatively few households were found to have very high or very low amounts of uncommitted funds; however, those with 4 members and 5 or more members tended to have larger percentages with both lower and higher levels (that is, outside the one standard deviation range).

Tenure Status and Uncommitted Funds

Regardless of tenure status, consumer units tended to have uncommitted funds in amounts close to the mean of \$4211 (Table 3). Between 71.8 and 92.1 percent of the consumer units were clustered within one standard deviation of the mean. Interestingly, homeowners with a mortgage tended to have somewhat higher levels of uncommitted funds than did home owners without a mortgage, renters, or others.

TABLE 3. PERCENT OF CONSUMER UNITS (CUs) WITH SPECIFIED LEVELS OF UNCOMMITTED FUNDS BY HOUSING TENURE STATUS

LEVEL OF UNCOMMITTED FUNDS	TENURE STATUS			
	HOME OWNER WITH MORTGAGE	HOME OWNER WITHOUT MORTGAGE	RENTER	OCCUPIED WITHOUT PAYMENT
-----PERCENT*-----				
LESS THAN -\$26,672 (<2 S.D.S.)	2.1	1.9	0.0	0.0
-\$26,672 TO -\$11,231 (MINUS 1 - 2 S.D.S.)	9.4	6.1	5.7	10.0
\$4,211 TO -\$11,231 (-1 S.D.)	35.9	54.9	68.3	60.0
\$4,211 TO \$19,652 (+1 S.D.)	35.9	26.8	23.8	30.0
\$19,652 TO \$35,093 (+ 1 TO 2 S.D.S.)	12.6	8.5	1.8	0.0
MORE THAN \$35,093 (>2 S.D.S.)	4.2	1.9	0.4	0.0
$\chi^2 = 77.037$ (P<0.000)				
*MAY NOT TOTAL 100.0 BECAUSE OF ROUNDING.				

Uncommitted Funds and Age

Consumer units are arrayed by 10 year age intervals by level of uncommitted funds in Table 4. Regardless of age, the largest percentage of consumer units was found to be in the range at or below the mean by one standard deviation (i.e., \$4211 to -\$11,231). Further, it can be observed that the distributions of all age categories cluster around the mean in a relatively "normal" manner. Somewhat more (approximately 15%) of those 40-49 and 50-59 years of age had high levels of uncommitted funds, something that might be expected in terms of a life-cycle theory.

TABLE 4. PERCENT OF CONSUMER UNITS (CUs) WITH SPECIFIC LEVELS OF UNCOMMITTED FUNDS BY AGE OF PRIMARY RESPONDENT

LEVEL OF UNCOMMITTED FUNDS	AGE OF PRIMARY RESPONDENT (YEARS)					
	20-29	30-39	40-49	50-59	60-69	70+
	-----PERCENT*-----					
LESS THAN -\$26,672 (< 2 S.D.S.)	0.9	1.5	3.9	0.0	0.8	0.9
-\$26,672 TO -\$11,231 (MINUS 1 TO 2 S.D.S.)	7.9	7.3	10.4	7.5	8.0	3.6
\$4,211 TO -\$11,231 (-1 S.D.)	56.1	42.9	38.3	42.5	49.6	79.5
\$4,211 TO \$19,652 (+ 1 S.D.)	28.9	38.5	31.2	34.2	28.0	13.4
\$19,652 TO \$35,093 (+ 2 S.D.S.)	5.3	6.3	13.0	11.7	12.0	1.8
MORE THAN \$35,093 (> 2 S.D.S.)	0.9	3.4	3.2	4.2	1.6	0.9
$\chi^2 = 79.746$ (P<0.000)						
*MAY NOT TOTAL 100.0 BECAUSE OF ROUNDING.						

Education and Uncommitted Funds

Relatively large percentages of consumer units whose primary respondent had limited education held uncommitted funds in amounts less than the mean for all consumer units. For example, 74.2 and 63.1 percent, respectively, of the consumer units whose primary respondent had either 1-8 years of schooling or some high school (but not a diploma) held uncommitted funds below the mean by one standard deviation. Even in consumer units whose primary respondent had graduated from high school or had some college experience, nearly half (48.5 and 49.0 percent respectively) were on the downside of the mean by one standard deviation. Among consumer units whose primary respondents was college graduated and, to a lesser extent, those who had graduate college experience, larger percentages held uncommitted funds above the mean (61.1 and 51.9 percent, respectively).

TABLE 5. PERCENT OF CONSUMER UNITS (CUs) WITH SPECIFIED LEVELS OF UNCOMMITTED FUNDS BY EDUCATIONAL LEVEL OF PRIMARY RESPONDENT

LEVEL OF UNCOMMITTED FUNDS	EDUCATION LEVEL					
	1-8 YEARS	9-11 YEARS	12 YEARS	SOME COLLEGE	COLLEGE GRADUATE	GRADUATE SCHOOL
	-----PERCENT*-----					
LESS THAN -\$26,672 (< 2 S.D.S.)	0.0	0.0	1.1	1.7	1.8	5.3
-\$26,672 TO -\$11,231 (MINUS 1 TO 2 S.D.S.)	3.2	4.9	8.3	12.0	5.3	7.9
\$4,211 TO -\$11,231 (- 1 S.D.)	74.2	63.1	48.5	49.0	31.9	34.2
\$4,211 TO \$19,652 (+ 1 S.D.)	21.5	25.2	29.7	28.0	43.4	35.5
\$19,652 TO \$35,093 (+ 2 S.D.S.)	0.0	6.8	8.6	7.4	15.0	11.8
MORE THAN \$35,093 (> 2 S.D.S.)	1.1	0.0	3.8	1.7	2.7	5.3

$$\chi^2 = 81.123 \quad (P < 0.000)$$

*MAY NOT TOTAL 100.0 BECAUSE OF ROUNDING.

Region and Uncommitted Funds

Region of the country did not influence the distributions of CUs by level of uncommitted funds.

Regression Analysis

Regression analysis of the data allowed controlling statistically for the effects of other variables while examining the effects of one independent variable on the dependent variable, "uncommitted funds." Although regression didn't explain very much of the variation in "uncommitted funds" ($R^2=0.07$), it did help to sort out the relative importance of the independent variables (on the basis of standardized regression coefficients).

The dependent variable, "uncommitted funds," was influenced to an extent that was statistically significant by (ranked from greatest to least effect): number of earners (CUs with more earners having higher levels of uncommitted funds), size of consumer unit (larger consumer units having lesser amounts of uncommitted funds), tenure status (owners with mortgages tending to have greater uncommitted funds), and age (older CUs tending to hold greater amounts of uncommitted funds). Educational level didn't enter the stepwise regression.

Implications

These data suggest that consumer units whose primary respondents were older have greater potential for saving (that is, they have more "uncommitted funds"). Thus, educators, financial counselors, and others have reason to provide information about saving tailored to the needs of specific age groups.

Larger consumer units and those with multiple earners tend to have larger pools of "uncommitted funds" which might be devoted to savings. Thus, those CUs may have greater need than others for advice and/or education about the relative merits of various savings/investment alternatives and strategies.

Home owners, especially those with mortgages, tend to have greater pools of uncommitted funds than do renters. This may suggest special approaches for the two groups (owners vs. non-owners) in educational offerings, financial counseling, and other intervention programs.

Region of the country was not linked to the level of "uncommitted funds" held even when examined in cross-tabular analysis. Thus, there would appear to be no reason for educational and other helping efforts to be designed for specific locales unless some unusual local institutional variations exist.

Educational level was statistically linked to level of "uncommitted funds" when examined alone in cross-tabular analysis. However, when the effect of other independent variables was accounted for in regression, education was not found to be statistically significant as an explainer of differences in levels of "uncommitted funds." This finding is somewhat surprising and puzzling with respect to its implications.

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SAVING AND DISSAVING IN RETIREMENT

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The life cycle hypothesis posits that households will attempt to maintain a constant level of consumption during their lifetimes. To do this, they borrow during the early years of household formation, repay debts and save during peak earning years and then dissave during retirement years. It follows that households would annuitize assets at retirement and draw down their assets in proportion to their life expectancy.

While this approach is intuitively appealing, it has been shown that households do not behave exactly according to this hypothesis. Many researchers found that although dissaving does occur during retirement, it is at a lower level than expected, given the life cycle hypothesis predictions.

Dissaving in retirement does not necessarily represent "bad" financial management. Judicious liquidation of financial assets, along with appropriate management of assets to generate income, is important for retired households. However, dissaving at rates which cannot support the household for its expected lifetime is a dangerous practice.

Evidence from Life Cycle Research

Numerous researchers have studied the life cycle hypothesis (1, 8, 11), focusing on the "savings" portion (5, 10, 12) as well as the "dissaving" portion (2, 3, 9). Empirical evidence using "macro" data (i.e., data aggregated at the national level) shows some support for this dissaving-at-retirement hypothesis, albeit at low levels.

Davies (3) found persons aged 65 to 85 dissaved at a rate of 2.9 to 3.7 percent per year, a rate significantly lower than the rate of 7 to 9 percent predicted by the life cycle hypothesis. Similarly, Mirer (9) found a median dissavings rate of 1.2 percent.

Bernheim (2) used the 1969-79 Longitudinal Retirement History Survey to study bequeathable wealth. He determined that wealth declined at rates of 3 to 4 percent per year for single persons and at rates of about 1 to 2 percent for married couples. He concluded that retirement aged individuals and couples did not dissave any significant fraction of their total resources. However, he included housing in the wealth measure. While this is a bequeathable asset, it is not an asset retirees usually manage in the same sense that they manage financial assets. Also, during the time of data collection, real

estate values escalated and thus the low rates of wealth decline in part reflect higher housing values.

Since the life cycle hypothesis combines saving and consumption patterns, another way to approach life cycle research is to look at consumption. Kotlikoff, Spivak and Summers (7) studied the ratio of consumption during old age to lifetime consumption as a measure of the adequacy of lifetime savings, also using data from the Longitudinal Retirement History Survey. Their results indicate that over 90 percent of married couples can afford old age consumption levels of at least 80 percent of their lifetime consumption level, and that 73 percent of couples could afford to consume at a higher level than their lifetime consumption level, but only until age 88.

Hammermesh (4) examined the effects of life expectancy on the timing of retirement and consumption during retirement. Life cycle theory posits that persons will consume less and work more if they expect to live longer. However, he found that increased longevity had not been met by spending cuts which would enable people to maintain their real consumption over longer lifetimes. If such is the case, then asset decumulation should take place at a more rapid rate as a person ages.

In summary, some evidence exists that retirees dissave during retirement, although levels of dissaving appear to be low. The Social Security Administration's Longitudinal Retirement History Survey (LRHS) provides a wealth of information for studying changes in a set of retirement aged households over a 10 year period from 1969 to 1979. The LRHS included men and single, widowed, divorced or separated women who were ages 58 to 63 in 1969; there were 11,153 respondents initially. The remainder of this paper will focus on findings from this data set.

Characteristics of Savers and Dissavers

In order to control for the length of retirement, respondents who were working in 1969 but who reported themselves retired in 1971 were studied. The potential age range in 1971 was 60 to 65. Data from 1979 were used to determine savings or dissavings during retirement. Because data from both time periods was needed, only respondents with data from 1969 through 1979 were included; of necessity, this is a report on survivors.

"Savers" are those households who have maintained or added to the value of their financial assets from 1971 to 1979. Financial assets include the values of savings bonds, stocks and bonds, savings accounts, and cash value of life insurance. "Dissavers" are those households for whom the value of financial assets in 1979 is less than the value in 1971.

Nearly half of the households studied (46 percent) were savers (see Table 1). On average, dissavers had lower incomes than savers (\$7,900 and \$9,356, respectively). However, dissavers started retirement with about \$7,000 more in financial assets than savers. Among retirees who owned their homes, dissavers reported lower amounts of appreciation in the market value of their homes.

Dissavers were more likely to be single and more likely to have experienced the death of a spouse. Nearly equal proportions of savers and dissavers reported themselves in good health, so it seems that medical expenses may not have been the major cause of dissaving.

Table 1
Savers vs. Dissavers, 1971 to 1979

Variable	Saver	Dissaver
Income in 1979	\$ 9,356	\$ 7,900
Initial value of assets in 1971	21,298	28,887
House Appreciation	20,888	8,495
Marital status (1=married)	.89	.64
Widow (1=widowed)	.18	.25
Health (1=good)	.68	.69
Residence (1=urban)	.43	.71
Education	10.12	10.01
Sex (1=male)	.94	.84
Race (1=white)	.94	.96
Age	71.37	71.20
N	218	253
Proportion "saving"	.46	

Dissavers were more likely to live in an urban area and were more likely to be female. Dissavers had slightly less education than savers and were slightly younger. Nearly equal proportions of savers and dissavers were white.

In a multivariate analysis of savers and dissavers, the initial value of assets held, value of owned housing, marital status, becoming widowed, living in an urban area and education were significant determinants of the probability of saving during retirement (6). Higher levels of income were associated with increased probability of saving. Being non-white was associated with lower probabilities of being a saver.

Among the significant variables, a higher initial value of assets was associated with a reduced probability of savings. This is somewhat as expected, since households may purposely built up assets prior to retirement in anticipation of withdrawing and spending down these assets. Higher housing values were associated with increased probabilities of saving, as were being married, becoming widowed, living in an urban area, and having more years of schooling.

It is important to note that the marginal changes in the probability of savings were quite small; for example a \$1000 increase in the initial value of assets would decrease the probability of saving by only .002. The largest marginal effect seemed to be for those who were married.

Disproportionate Dissavers

As stated earlier, dissaving in and of itself is not bad if it is done in proportion to remaining life expectancy. To determine if households were dissaving faster than expected actuarially, expected values of financial assets in 1979 were calculated by estimating the household's life expectancy, based on age of head, using actuarial tables. Life expectancy was used to create an annuity factor and this annuity factor was applied to the value of financial assets in 1971. The actual value of financial assets in 1979 and the calculated expected value were then compared. For example, if a household head was 62 in 1971, his life expectancy would be about 21 years (actuarial values based on age and sex were used to determine life expectancy). By 1979, the household should have spent down or dissaved 8/21sts (38 percent) of their financial assets if they were annuitizing them, leaving 13/21sts (62 percent) of the original amount in 1971. The expected value of the assets (in the example, .62 * financial assets in 1971) was then compared to the reported value in 1979 to determine if dissavings had occurred at rates slower or faster than expected.

Nearly one out of five households were dissaving at rates which could not be supported over their expected lifetimes (see Table 2). Severe dissavers (those spending down assets faster than expected) had lower annual incomes than others (\$6,400 versus \$9,000), but started out retirement with about \$10,000 more in financial assets. Among homeowners, severe dissavers reported lower amounts of appreciation in the market value of their homes.

Table 2

Disproportionate Dissavers, 1971-79

Variable	Severe Dissavers	Others
Income in 1979	\$ 6,438	\$ 9,058
Initial value of assets in 1971	33,545	23,523
House Appreciation	8,606	15,506
Marital status (1=married)	.49	.81
Widow (1=widowed)	.21	.22
Health (1=good)	.66	.69
Residence (1=urban)	.78	.54
Education	9.50	10.19
Sex (1=male)	.74	.89
Race (1=white)	.91	.95
Age	71.14	71.31
N	87	384
Proportion with severe dissaving	.185	

Over half of those households reporting disproportionate dissaving were single person households. In contrast, only one out of five households reporting saving or appropriate rates of dissaving were single person households. Nearly equal proportions were widowed and nearly equal proportions reported themselves in good health.

Severe dissavers were more likely to live in urban areas and to be female. They were also likely to have fewer years of schooling and to be younger than those not dissaving at disproportionate rates. Severe dissavers were slightly more likely to be minority.

In a multivariate analysis of the disproportionate dissavers versus others, income, initial value of assets, marital status, living in a urban area and education were significant determinants of dissavings behavior (6). An increase in income was associated with a decrease in the probability of experiencing severe dissaving, as was being married. Higher initial values of assets and living in an urban area were associated with increased probabilities of severe dissaving. This finding with respect to initial values of assets is not as expected, although the increase in probability is quite small. Most of the other marginal affects were quite small; for example, a \$1,000 per year increase in retirement income would decrease the probability of severe dissavings by .03.

Changes Among Financial Assets in Retirement

Managing assets in retirement requires a combination of liquidation and portfolio adjustment to generate interest and dividend income. Asset management becomes an especially important issue for households who are asset-rich and cash-poor (i.e., those who hold a large proportion of their wealth in non-financial assets such as real estate). The ability of a retired household to generate income from assets depends, among other things, on the type of assets held, the household's risk preferences, its knowledge of financial products and markets, and its general skills in financial management.

Mean values for financial and other assets held in 1971 and 1979 and mean differences of these values are reported in Table 3. The aggregate data in columns 1 and 2 of Table 3 suggest that, on average, the nominal dollar value of assets held in savings bonds and cash value of life insurance declined, while the value of assets in stocks, checking and savings accounts and value of owned housing rose. In the aggregate, the values of total financial assets and total assets rose.

Information on the means of the difference between the value of assets in 1979 and 1971 is presented in column 3 of Table 3. Over the eight years studied, on average, balances in checking accounts rose, as did the value of owned housing, stocks and the value of total assets. Assets held in savings bonds, savings accounts, and life insurance declined on average, as did the value of total financial assets.

The decline in the value of savings bonds held may be a reflection of the difference between the rate of return on these bonds and the rate of inflation. As inflation eroded the value of the accruing interest, retirees may have decided to cash in these bonds and use or re-invest the proceeds. The decline in the value of life insurance might be expected since the elderly may feel less of a need for life insurance to support dependents and since life insurance paid very low rates of return relative to inflation in the mid-1970s. The decline may also reflect beneficiary payments.

Table 3
Means of Financial Assets
(in nominal dollars)

	1971	1979	Difference
U.S. Savings Bonds	\$ 1,252.27	\$ 935.68	\$ -305.23
Stocks and Bonds	6,253.86	7,529.37	1,269.65
Savings Accounts	6,949.65	13,248.00	-83.19
Checking Accounts	839.10	1,005.06	267.15
Life Insurance (cash value)	7,338.35	5,809.26	-1,490.70
Sum: Financial Assets	23,903.60	25,862.40	-529.66
House	15,336.44	29,415.10	14,219.36
Sum: Total Assets	39,078.40	55,086.63	13,636.89

Savings balances were lower, on average, but only by \$83. The distribution of this variable was somewhat skewed; approximately 28 percent of households reported a lower savings balance in 1979 than in 1971. In some cases, the difference was quite large; in about 10 percent of the cases, the savings balances dropped over \$30,000 during the 8 year period.

Total financial assets dropped about \$530 over the 8 year period. This dissavings is consistent with the life cycle theory but the magnitude is quite small to represent any significant dissaving. Given the average age of the sample in 1971 (63) and an average life expectancy of 20 years, the life cycle hypothesis would predict that the average individual would have spent down 8/20ths of their assets during the period under study. At the mean, this would translate to spending down about \$9500 of the \$23,900 in financial assets reported in 1971. The increase in the average value of total assets (\$13,640) most probably reflects the rise in housing values over the 8 years.

The higher balances held in checking accounts can be interpreted as an indication of the high liquidity preferences of retirees. It is important to note that during the period under study (1971-1979), checking accounts were interest-free. It was not until the Monetary Control Act of 1980 that NOW and "interest checking" accounts came on the scene. Thus, these retirees were choosing to forego interest in order to remain more liquid.

With regard to the higher amounts of stocks held in 1979 versus 1971, this result is as might be expected if the retirees chose not to realize their capital gains and/or participated in a dividend re-investment program. Ordinarily one might expect retirees to end such re-investment programs and take the dividends as cash income. However, in the early years of retirement, retirees rationally may decide to have an investment goal of continued growth in

order to buffer their future income (in 15 or 20 years) against the effects of inflation. The shift out of re-investment programs and/or out of growth oriented stocks and into income producing investments may occur later on in retirement.

The difference in the value of the house is of interest more from an academic perspective than from a practical one. Since these households could not, or did not, tap the equity in their homes, the higher value is expected. It is also interesting to note that the value of housing for persons in this sample increased by a factor of 1.9 from 1971 to 1979; over the same time period, the CPI for housing rose by a factor of 1.84.

As seen in Table 4, retirees' asset portfolios vary depending on whether or not the house is included as an asset. In 1971, 81 percent of retired households in this subsample of the LRHS were homeowners; by 1979, 77 percent were homeowners. Since most retired households do not use their homes to generate income, the discussion will focus on the portfolios excluding the value of the home.

Over the eight years studied, retirees increased the proportion of assets they held in savings accounts and decreased the proportions of assets held in other investments. This could be interpreted as a strong preference for safety and liquidity, at the expense of lower rates of return. However, "savings accounts" also include certificates of deposit, which in the late 1970s were paying double digit rates of return. Unfortunately, it is not known what proportions of savings were in passbook accounts versus other higher yield savings instruments.

Table 4
Asset Holdings of Retired Households

	At Retirement (1971)		8 Years Later (1979)	
	Including house in portfolio	Excluding house	Including house in portfolio	Excluding house
U.S. Savings Bonds	3.2%	4.7%	1.8%	2.6%
Stocks & Bonds	6.5	8.5	5.6	7.8
Saving Accounts	28.3	49.3	34.8	66.1
Checking Accounts	4.6	8.2	3.8	6.6
Life Insurance	18.2	29.3	9.8	16.9
(Cash Value)				
House	39.2	--	44.2	--
Mean value	\$44,775	\$28,372	\$66,630	\$34,208
(nominal dollars)				
Median value	\$33,342	\$15,107	\$50,103	\$18,528
(nominal dollars)				

Discussion

It is important to note that the findings reported here focus on saving and dissaving behaviors during the first 8 years of retirement; since life expectancies ranged from 17 to 26 years, the first 8 years may not provide enough evidence to capture all the factors affecting saving/dissaving behaviors. With 5 percent of persons 65 and over in nursing care facilities, compared to 22 percent of persons age 85 and over, dissaving may be better studied at later ages in retirement.

Nearly half of the retired households continued to save and build assets in retirement. It would be interesting to know why this was the case. Keeping in mind that this study covered the first eight years of retirement, households may have continued to save in response to uncertainty regarding future health expenses and longevity. Given that this cohort was in their 20s during the 1930s Depression, the value and importance of the "nestegg" and of savings may be quite high and old habits die hard. Also, these cohort effects may not make these results generalizable to future generations of retirees.

On the other hand, nearly one-fifth of the sample were dissaving at rates that could not be sustained during their expected lifetimes. Again, the question is "Why?" Health was not a significant determinant of severe dissaving, nor was becoming widowed. One wonders what will happen to these households if they do not change their rate of resource depletion.

Income was found to be a significant determinant of dissaving and dissaving at disproportionate rates. If retired households could increase the income generated by their assets, there is less likelihood that they would need to dissave or at least be able to dissave at rates which would not totally deplete their resources. While retirement nesteggs are not venture capital, there are safe, higher return alternatives to passbook savings accounts. Retirees may benefit from exposure to and education about these alternatives.

The findings regarding initial value of assets have some policy implications. Higher initial values of assets are associated with lower probabilities of saving during retirement, but with positive increases in the differences between actual and expected values of assets. That is, although households may not be actively saving, they are spending down at an appropriate rate. The case can be made that policies should be developed to provide incentives for building savings for retirement, such as continued support of tax-deferred savings plans.

The large proportion of assets held in owner occupied housing (44 percent of total assets in 1979) may become problematic during the later years of retirement when more liquid assets have been spent down. It is likely that consideration of owner occupied housing as an asset to be managed will become more important, especially in later years of retirement. The appreciation rates for well-maintained houses have tended to keep pace with inflation, making owned housing a "growth investment." However, tapping home equity through reverse annuity mortgages or sale and lease back arrangements was impossible (if not unthinkable) in the 1970s. The choice set for making housing a more "manageable" asset has expanded in the 1980s. Although equity conversion is one way to manage this asset, there are other options for older homeowners which may provide alternative streams of income, services or a shifting of resources and/or expenditures (e.g., accessory apartments, home sharing). The feasibility of these options is dependent in part upon the attitudes of the retirees and in part on federal, state, and local policies and regulations with regard to shared appreciation, zoning and other issues.

Given some of the limitations of the LRHS data, it is not possible to determine exact patterns of asset decumulation during retirement. However, the data do give some clues as to how retirees use their assets. First, they seem to have shifted money out of low return, fixed income assets, such as savings bonds and life insurance. This finding with regard to life insurance may be more a reflection of collecting beneficiary payments than of portfolio re-arrangement.

Second, retirees have strong preferences for safety and liquidity as evidenced by their holdings in checking and savings accounts. However, there is no way to spot movement within categories. For example, retirees could have moved money out of passbook savings accounts and into certificates of deposit, which paid better-than-inflation interest rates in the late 1970s. There is no way to know if the proceeds from life insurance were re-invested or used for consumption; although there is evidence that a decline in life insurance is associated with an increase in savings. Similarly, there is no way to know to what degree retirees adjusted their stock portfolio to provide for desired levels of risk, income, and growth.

It would be interesting to know if these households experienced any lifestyle or level of living changes in order to maintain some savings. Consumption and expenditure patterns of retired households need to be studied in conjunction with dissavings practices in order to determine if lifestyle changes are occurring.

Also, the findings point to a need for additional information on appropriate financial management techniques in retirement, including information on dissaving strategies. Unfortunately, little research has been done to clarify appropriate liquidation and other dissaving strategies.

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HOUSING AFFORDABILITY: CONCEPT AND REALITY

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Several interrelated and interdependent variables generally influence the outlook for housing. Prospects for economic growth, including the availability and cost of mortgage financing, housing costs as compared with consumer income, and the balance between the supply and the demand for housing, are major factors. Demand for housing is closely tied to demographic trends such as residential mobility, family size and structure, and household formation, while housing supply is a function of the participation of both public and private sectors in the production and distribution of housing.

Although the question of housing affordability is closely associated with these basic variables, housing affordability is a more complex phenomenon. The term "affordable" implies a match between consumer income and housing costs. For a young father of two with a working spouse and an annual family income of 35,000 dollars, a means of providing affordable housing may be to purchase a single-family detached home in the suburbs with three bedrooms, two baths, a carport and some play space for the children.

For a young father of two in Portland, Oregon (or any number of other major cities) who has lost his job, a means of providing affordable housing may be to abandon his family and sleep in the park so that his wife and children can qualify for a bunk in one of the homeless shelters in the city's Burnside Community. In both of these examples, fulfilling the desire for affordable housing requires matching family and sometimes community resources to available housing.

The outlook for affordable housing is then more specifically influenced by interactions among consumer characteristics that limit household income (i.e. education, employment, household size and structure etc.) and the level of public and private sector involvement in providing low-cost housing. For our purposes today an adequate supply of affordable housing is defined as "a number of shelter options available to consumers that require less than 30 percent of the household income for occupancy." Although

homeownership is the desired norm for tenure status in the United States, it is simply not an alternative for many low- and moderate-income consumers. The outlook for housing affordability then must be considered in the context of housing options for persons seeking to buy or rent housing units.

Outlook for Affordable Housing - Buyers' Market

Since post World War II days, the dream of homeownership has been a reality for a majority of American households. Young families enjoyed the prosperity of the times and eagerly anticipated homeownership. Until the 1980s the country experienced uninterrupted growth in the homeownership rate (from 44% in 1938 to an all-time high of 65.6 % in 1980). However, unparalleled growth in the cost of new and existing housing in recent years has made home ownership less available to first-time homebuyers.

New Home Prices

In 1986, the median price of new one-family homes sold rose approximately 9.1 percent, up from the 5.5 percent increase in 1985. Prices increased about 14.1 percent in 1987. Overall, new home prices rose from \$35,900 in 1974 to a projected \$105,000 at the end of 1987 (Figure 1).

Figure 1. Increases in New Home Prices 1974-1987

Year	\$ Cost	% Increases	Year	\$ Cost	% Increase
1974	\$35,900	-	1981	\$ 68,900	6.8
1975	39,300	9.5	1982	69,300	0.05
1976	44,200	12.5	1983	75,300	8.7
1977	48,800	10.4	1984	79,900	6.1
1978	55,700	14.1	1985	84,300	5.5
1979	62,900	12.9	1986	92,000	9.1
1980	64,500	0.3	1987	105,000 (NAHB forecast)	14.1

Source: NAHB "Housing Backgrounder." January, 1988.

Existing Home Prices

Although the cost of existing housing has traditionally been lower than the cost of new housing, concomitant cost increases in existing housing have also occurred. The median price of existing homes rose 6.4 percent in 1986 to \$80,300, and by 7% in 1987 to a high of \$85,700. By comparison, prices increased only 4.3 percent in 1985 (Figure 2).

Figure 2. Increases in Existing Home Prices 1974-1987

Year	\$ Cost	% Increase	Year	\$ Cost	% Increase
1974	32,000	-	1981	\$66,400	6.7
1975	35,300	10.3	1982	67,800	2.1
1976	38,100	7.9	1983	70,300	3.7
1977	42,900	12.6	1984	72,400	3.0
1978	48,700	11.9	1985	75,500	4.3
1979	55,700	14.4	1986	80,300	6.4
1980	62,200	11.7	1987	85,700 (NAHB forecast)	6.7

Source: NAHB "Housing Backgrounder." January, 1988.

The approximate \$20,000 difference in the 1987 cost of new and existing houses indicates that many first-time home buyers will find existing housing more affordable. Aside from initial cost factors, interest rate projections and family income also impact housing affordability.

A simple analysis of housing affordability data reported by NAHB reveals the major impact of interest rates on a family's ability to purchase housing (Figures 3 and 4). As the interest rate decreases, so do total monthly expenses and annual income requirements. At the same time, the number of families able to afford the lower costs also increases. Assuming that expenses equal 28% of the income, for the two examples given, approximately \$2,500 in annual income is required to purchase the same house for each percentage increase in interest rate. Concomitantly, a 2.5 to 3 percent decline in the total number of families with incomes needed to purchase is shown for each percentage increase in interest rate.

As of November 1, 1988, interest on fixed rate mortgages ranged from 10 to 10.5 percent; variable and adjustable rate mortgages were some 1.75 to 2.0 percentage points lower. Slight increases in interest rates on both types of mortgages have been seen and are predicted to continue signaling more difficulty for would-be home buyers. Increases in interest rates and housing costs will severely hamper first-time home buyers in securing affordable housing because they lack the equity accumulations available to previous homeowners.

Decreases in the homeownership rate among younger households has been seen for the past 12 to 15 years (Figure 5). Given the steady decline in

Figure 3. Affordability of Housing
Based on a 30 year mortgage of \$76,500 (\$85,000 purchase); fixed rate
(10% downpayment)

Interest Rate	Monthly Principal & Interest Payment	Property Taxes & Insurance	Total Monthly Expenses	Annual Income Needed to Afford	Number of Families w/Income Needed	Percent
9%	\$ 616	\$ 125	\$ 741	\$31,744	21,833,000	35.2%
11	729	125	854	36,586	16,806,000	27.1
13	849	125	974	41,726	12,718,000	20.5
15	972	125	1,097	46,995	9,354,000	15.1
17	1,094	125	1,219	52,222	7,074,000	11.4

Source: NAHB "Housing Backgrounder." January 1988.

Figure 4. Affordability of Housing
Based on a 30 year mortgage of \$90,000 (\$100,000 purchase); fixed rate
(10% downpayment)

Interest Rate	Monthly Principal & Interest Payment	Property Taxes & Insurance	Total Monthly Expenses	Annual Income Needed to Afford	Number of Families w/Income Needed	Percent
9%	\$ 725	\$ 145	\$ 870	\$37,271	16,136,000	26.0%
11	858	145	1,008	42,969	11,828,000	19.1
13	999	145	1,144	49,009	8,324,000	13.4
15	1,143	145	1,288	55,178	6,085,000	9.8
17	1,287	145	1,432	61,347	4,265,000	6.9

Source: NAHB "Housing Backgrounder." January 1988.

homeownership rates among younger householders, homeownership rates will continue to increase for households in higher age brackets who purchased housing in past years and are now beneficiaries of sizeable home equity accumulations. Without major decreases in housing costs, homeownership rates among younger households will continue to decline. Projected increases in mortgage interest rates will also contribute to a decline in the overall homeownership rate.

Figure 5. Average Home Ownership Rates by Household Age 1974-1987

Year	Age of Household Head							Average
	25-29	30-34	35-39	40-49	50-59	60-69	70-up	
1974 - 1978	43.1	62.2	69.3	75.4	77.5	75.2	68.9	67.4
1979 - 1981	43.0	60.5	70.0	75.4	78.8	77.8	70.9	68.1
1982 - 1985	38.0	55.0	66.1	73.5	78.9	79.2	73.3	66.3
1986 - 1987 Q ³	36.6	53.6	64.5	72.4	79.0	79.7	73.7	65.6

Source: Combined from Data in the NAHB "Housing Backgrounder." January 1988.

Outlook for Affordable Housing - The Rental Market

Although some individuals and families choose to rent housing for numerous life-style, economic and convenience factors, the large majority of low- and moderate-income families rent because they have no other viable alternative. According to a report of the National Housing Task Force (March, 1988), of the 241 million people who lived in the United States in 1986, one in seven (over 32 million people), lived below the poverty line. This number is equal to the total population of the states of Alaska, Wyoming, Vermont, Delaware, North and South Dakota, Montana, Nevada, New Hampshire, Kansas, Arkansas, Oklahoma, Mississippi and 10 other states in the nation. Almost one in every three people that one meets on a day-to-day basis lives in a household whose income is less than \$15,000. The primary financial problem for most of these households is paying for housing. A critical concern for low-to-moderate income households is that the demand for affordable rental housing is rapidly increasing while the supply of affordable units is dwindling. In 1987 4.7 million renter households had incomes under \$5,000 (an increase of more than two million households from 1974).

The Rental Housing Crisis Index for 1985, (Shapiro and Greenstein, 1988), reports a nationwide deficit of 3,942,936 units. The percentage deficit by state ranged from a high of 267.7 in California to a low of 12.6 in Mississippi. Three states (California, New Jersey, Nevada) and the District of Columbia had deficits in excess of 200% of the number of units needed to house its low-income population. Stated another way, in these states, for the total number of low-income households living in affordable housing, twice as many other households could not find suitable housing that matched their income. A quick comparison of rental vacancy rates with increases in median asking rents from 1978-1986 reveals that vacancy rate increases are highly correlated with increases in median asking rents.

For many years it was believed that the private housing market could meet the needs of low-income renters. However, for the past several decades the housing needs of the "poor" have been facilitated by government intervention in (1) the actual construction of units as seen with public housing (the primary housing assistance program from the late 1930's through the mid 1960's); or (2) providing incentives to private and non-profit developers to build low- and moderate-income rental units (the primary federal approach of the "War on Poverty" legislation).

Specifically, the construction and management of low-income rental housing is not cost-effective in the absence of government support such as tax incentives, rental subsidies, insured mortgages, etc. In fact, the last two major federal efforts directed toward providing rental housing for low- and moderate-income families (Sections 221d-3 and 236 of the National Housing Act) were based solely on private sector involvement in housing development and delivery. These two programs alone added more than 355,390 units of multi-family rental housing to the nation's housing stock.

Primary to the incentives offered by the legislation was a "sun-set" clause that allowed pre-payment of government backed mortgages in 20 years. Following pre-payment the units can be converted to whatever use the owner desires. As legislation establishing both Section 221d-3 and Section 236 were passed more than 20 years, approximately 17,276 units are currently eligible for pre-payment, with another 265,971 units eligible for conversion between 1989 and 1994 (Figure 6). This number is 80 percent of the total number of units available under both programs.

Figure 6. Number of Section 221d-3 and Section 236 Units Eligible for Prepayment by Year

Year	Number of Projects	Number of Units	Percent of Total
1982 - 1988	130	17,276	5.0
1989 - 1991	781	92,754	26.1
1992 - 1994	1,679	173,217	48.7
1995 - 1997	462	55,334	15.6
1998 - 2000	76	11,188	3.1
2001 - 2006	49	4,774	1.3
Undetermined	8	852	.2
Total	3,185	355,390	100.0

Source: U. S. Department of HUD.

Although it is difficult to estimate the exact number of units that will actually be converted, the possibility of utter disaster in the rental market for low- to moderate-income multi-family housing is eminent. Observation of the Housing Crises Index by state and HUD region suggests that some states and regions are more vulnerable to the possible loss of units than others (Figure 7). Generally, states with the highest crisis index could possibly lose the highest number of units. Of course these states also initially had higher numbers of units built. It is also noted that the crisis index only measures unit cost to renters. It does not consider the physical condition of the units. As expected, states in Regions 4 and 6 (primary southern rural states) generally had lower housing crisis indices, but the physical quality of housing in the rural south is lower than in any other section of the country.

In the past, demolitions, conversions, renovations and rent increases have played a major role in the declining number of affordable private-market rental units. Condominium conversions and rent increases will likely continue to be attractive alternatives to private sector holders of low-income units as these two options offer the greatest potential for maximizing profits.

In summary, the outlook for affordable housing for low-to-moderate-income households may appear to be bleak in the absence of major government interventions. The National Housing Task Force (March, 1988) reported that in 1983 more than 6 million low-income families (almost half of the universe of low-income renters) paid more than half of their incomes for rent. Of the total 12.9 million low-income renter households, only 28 percent benefited from federal housing programs. Additionally, for the past 10 years, government support for low- and moderate-income housing has been drastically reduced. The HUD budget has been slashed from 7.4 percent of the federal budget in 1978 to less than 1 percent in 1988 (Daly, 1988). However, because of wide media-coverage of the growing number of homeless in the nation (estimates range from 250,000 to 3 million depending on the source), the political environment once again appears receptive to some housing support for the poor as well as for young first-time home buyers. However, two questions remain unanswered: what is the most cost-effective approach that will serve the housing needs of all sectors?, and how will support for housing (especially housing for the poor) fare in competition with other critical political issues such as the solvency of social security and medicare, the rising national debt, and increases in health care costs?

In response to the former question, increased local and state involvement in housing programs via bond financing, use of Community Development Block Grant funds for housing, and local initiatives in providing assistance and shelter for the homeless has recently emerged as a result of reduced federal support. Continued expansion of these efforts should improve the future availability of affordable housing.

Figure 7. Units Eligible for Pre-Payment 1989-1994 and Housing Crises Index by HUD Region and State

Regions	Eligible Units ¹	Housing Crises Index ²	Regions	Eligible Units ¹	Housing Crises Index ²
Region 1			Region 6		
Connecticut	8,892	180.3	Arkansas	3,909	19.9
Massachusetts	11,566	136.7	Louisiana	6,793	45.4
Maine	1,179	71.8	New Mexico	931	41.7
New Hampshire	1,924	97.4	Oklahoma	3,798	51.5
Rhode Island	3,713	106.4	Texas	21,858	75.9
Vermont	634	95.2			
Region 2			Region 7		
New Jersey	3,825	229.7	Iowa	3,404	63.0
New York	8,073	137.6	Kansas	1,262	47.5
			Missouri	6,360	57.6
			Nebraska	1,332	50.3
Region 3			Region 8		
Delaware	259	123.7	Colorado	2,470	125.6
Washington, D.C.	1,212	213.1	Montana	1,190	32.4
Maryland	10,603	180.3	North Dakota	316	46.6
Pennsylvania	10,354	73.6	South Dakota	1,639	29.1
Virginia	7,489	88.6	Utah	955	99.3
West Virginia	129	11.4	Wyoming	444	55.5
Region 4			Region 9		
Alabama	2,816	29.7	Arizona	3,493	90.3
Florida	8,228	126.2	California	27,295	267.7
Georgia	9,186	54.4	Hawaii	1,693	51.1
Kentucky	5,026	32.7	Nevada	221	264.1
Mississippi	2,258	12.6			
North Carolina	5,240	35.3	Region 10		
South Carolina	4,606	24.2	Alaska		
Tennessee	5,609	48.4	Idaho	564	15.7
			Oregon	979	58.3
Region 5			Washington	4,114	141.1
Illinois	11,740	79.1			
Indiana	10,924	59.7	Nation	265,971	93.7
Minnesota	5,431	110.5			
Michigan	11,723	110.0			
Ohio	4,191	92.3			
Wisconsin	5,478	97.0			

¹ Source: Data provided by HUD² Source: "Holes In the Safety Net", Joint Center on Budget and Policy Priorities, April, 1988.

Employer-assisted housing is also a new phenomenon that improves the outlook for affordable housing in the future (Schwartz, 1988). Personnel benefits for employees are increasingly being directed to housing. Ownership assistance by way of mortgage guarantee and insurance programs, interest rate subsidies, down payment loans, and shared-equity loans is frequently included in employee-fringe benefit packages. Corporate construction subsidies and/or corporate donations to community housing programs are being used to provide assistance to renter households. Since these programs currently enjoy the support of labor and management, they are expected to expand.

A pragmatic response to the latter question (how will housing support fare in competition with other critical needs?) is "not very well." Ideally, housing production and delivery are viewed as functions of the private market, while social security and medicare benefits have been placed in the public trust. This difference alone suggests that support needs for these programs will take precedence over support for housing. The need to reduce the national debt is unquestionable, but, while federal efforts at reducing the national debt may, in the short term, limit federal initiatives in housing, the long-term benefits of such action (economic growth and a stable economy) should have a positive impact on housing.

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243 HOUSING AND COMMUNITY PREFERENCES: WILL THEY CHANGE IN RETIREMENT?

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Introduction

The elderly population, previously treated as one market (Meyer, 1987), is now looked at as three distinct markets, the first of which is the young-old--generally active retirees aged 65 to 74 who are still married. The young-old's impact has been felt because there are more of them and they have substantial income with which they are carving out new lifestyles, ones in which they remain independent. There are currently no models available for these people to turn to for guidance in their decision-making (Riche, 1986). Litwak (1985) suggests that the young-old with intact marriages, good health and enough retirement income have social pressures to relocate at retirement.

What are maturing Americans' preferences for their first ten years of retirement? How do their current housing and community characteristics compare with their retirement preferences? Will they prefer to relocate or to age-in-place?

Purpose of the Study

The purpose of this study is to determine if current housing and community characteristics and those preferred during the first ten years of retirement will be consistent or differ. The characteristics which are considered include (1) current housing tenure and tenure preference, (2) current housing structure type and structure type preference, (3) number of years in county where present home is located and preference to retire in or near current community, (4) current county as described by size of largest

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city within the county and preference for county based on largest city within the county, and (5) current state and state preference. In addition, each set of characteristics will be controlled for respondent's age, gender, marital status, educational level and income.

Methods

The data for these analyses were obtained from a survey which was conducted as a project by a Western Regional Agricultural Experiment Station Committee (W-176). The project is titled "Housing and Locational Decisions of the Maturing Population: Opportunities for the Western Region." Eight western states, (Arizona, Colorado, Idaho, Nevada, Oregon, Utah, Washington, and Wyoming) and Missouri are participating in the project. Regional data from the nine states are used in the analyses. A discussion of the questionnaire, sample selection, data collection, and treatment of the data follows.

Description of the Questionnaire

The Western Regional W-176 Technical Committee developed a ten page mail questionnaire, "Thinking Ahead to Retirement: Community and Housing Choices," which was based on a review of previous retirement literature. The Total Design Method (TDM) for Mail Surveys by Dillman (1978), a survey method used to elicit a higher response rate, was employed in designing the questionnaire and in collecting the data. The questionnaire was pilot tested by researchers in the nine participating states and final revisions were made.

Sample Selection

Land Grant University employees aged 40 and older were selected as the population. The sample was randomly selected from two age strata: 40 through 49 years of age and 50 years of age and older. One-third of the sample was randomly selected from the younger age stratum and two-thirds from the older age stratum. A higher proportion of the older age group was sampled since they were closer to retirement, and it was felt that this group may have developed a better defined set of criteria to use in making retirement decisions.

Data Collection

In October 1987 the questionnaire was distributed through campus mail, with off campus employees receiving their questionnaires through postpaid envelopes. One week after the initial mailing a follow-up letter was sent to everyone in the sample who had not responded. Two weeks later a second follow-up letter and replacement questionnaire were sent to persons that had not yet responded. With response rates ranging from 71% to 84% from the states, the regional sample size is 5662.

Treatment of the Data

Independent variables. Current housing and community variables are used as independent variables. Current tenure is defined by whether the housing unit is currently rented or owned, including either mortgage free or with a mortgage. Current structure type is defined as either a single family house

detached from any other or a structure type other than single family detached, including townhouses, apartments, mobile homes on owned and rented lots and buildings of duplexes, triplexes or quadplexes. The number of years respondents have lived in or near the county in which their current home is located was categorized into five categories: less than 2 years, 2-5, 6-10, 11-15, and more than 15 years. Respondents' zip codes were used to place respondents into six categories of counties with largest city ranging from less than 2,500; 2,500-9,999; 10,000-49,999; 50,000-149,999; 150,000-499,999; and 500,000 or more. The state of respondents' current residence includes the nine states participating in the study.

Dependent variables. Preferred housing and community variables for the first ten years of retirement are the dependent variables. Preferred tenure is either rent or own; preferred structure type is either single family house detached from any other or other structure type, including townhouses, apartments, mobile homes on owned or rented lots, buildings of duplexes, triplexes or quadplexes, and recreational vehicles. The preference to retire in or near the communities where respondents currently live or somewhere else was defined as strongly or somewhat prefer present community and somewhat or strongly prefer somewhere else. The county in which the respondents would most like to live during the first ten years of retirement was described as having a largest city of less than 2,500; 2,500-9,999; 10,000-49,999; 50,000-149,999; 150,000-499,999; and 500,000 or more.

Control variables. Demographic variables are the control variables. Age was categorized into five categories; 40-44; 45-49; 50-54; 55-59; and 60 and older. Gender includes male and female. Marital status is either married or unmarried, including never married, separated, divorced, and widowed. Educational level is high school graduate or less, schooling or training beyond high school, bachelor degree, master degree, and doctorate degree. Income categories were further categorized into five categories: less than \$25,000; \$25,000-\$34,999; \$35,000-\$49,999; \$50,000-\$64,999; and \$65,000 or more.

Analyses. Frequency distributions are used to describe the respondents and current and preferred housing and community characteristics. Two-way crosstabs with the Chi-square statistic were computed between independent, dependent, and control variables. All two-way cross tabs except for two were significant at the .05 level; current housing tenure by preference for county based on largest city within the county ($p>.05$) and number of years in county where present home is located by gender ($p>.05$). Three-way crosstabs with the Chi-square statistic were computed for each independent and dependent variable with each control variable. The level of significance was set at .05.

Findings

Description of Respondents

The majority of the respondents are male (58.6%) and married (78.6%). Median age is 52 years (range, 40-80). Most respondents hold doctoral degrees (35.0%). Others have attained schooling or training beyond high

school (18.7%), master degrees (17.1%), high school diplomas or less (14.1%), bachelor degrees (11.9%), or did not respond (3.2%). Median total family income is in the category of \$35,000 to \$49,999 (26.1%). More respondents have incomes above the median category (\$50,000-\$64,999, 19.8% and \$65,000 or more, 17.8%). Fewer respondents have incomes below the median category but are equally divided between \$25,000-\$34,999 and less than \$25,000, 16.5% each. Some respondents (3.2%) did not report their income.

Summary of Selected Variables

Current housing and community characteristics. Most homes are owner occupied (87.2%) and single family detached houses (84.3%) (see Table 1). The current county of residence has been home to the respondents for a mean of 21 years (range, less than 1-70). Counties with the largest city having a population of 10,000-49,999 are home to most (56%) respondents, followed by counties with a largest city of 50,000-149,000 (28%). Each of the nine states is represented in the sample, ranging from a low of the sample from Arizona (9.5%) to a high from Washington (13.3%).

TABLE 1. Current and preferred retirement housing and community characteristics. N=5662

	Current ^a (%)	Retirement Preference ^a (%)
Tenure		
Own	87.2	92.3
Rent	9.4	6.0
Other	2.1	-----
Missing	1.3	1.7
	<u>100.0</u>	<u>100.0</u>
Structure		
Single family, houses	84.3	74.2
Other structure types	14.7	22.0
Missing	1.1	3.9
	<u>100.1</u>	<u>100.1</u>
Number of years in present country		
Less than 2 years	2.2	-----
2-5 years	8.2	-----
6-10 years	11.7	-----
11-15 years	15.4	-----
Over 15 years	62.2	-----
Missing	.3	-----
	<u>100.0</u>	<u>-----</u>

TABLE 1 (continued)

	Current ^a (%)	Retirement Preference ^a (%)
Retire in or near present community		
Strongly prefer present community	-----	34.9
Somewhat prefer present community	-----	31.0
Somewhat prefer somewhere else	-----	18.5
Strongly prefer somewhere else	-----	14.6
Missing	-----	1.0
	-----	100.0
County by size of largest city:		
500,000 or more	.2	9.7
150,000 to 499,999	11.9	14.3
50,000 to 149,999	27.1	30.5
10,000 to 49,999	54.6	31.6
2,500 to 9,999	2.7	4.9
Less than 1,500	1.1	3.7
Missing	2.4	5.4
	100.0	100.1
State		
Arizona	9.5	11.2
Colorado	11.1	9.9
Idaho	10.9	8.6
Nevada	10.5	6.0
Oregon	11.6	12.5
Utah	11.2	7.5
Washington	13.3	10.3
Wyoming	10.6	5.0
Missouri	11.3	6.1
Other state	-----	22.9
	100.0	100.0

^aPercentages may not equal 100.0 due to rounding

Preferred retirement housing and community characteristics. Homeowner-ship (92.3%) and single family detached houses(74.2%) are preferred during the first ten years of retirement (see Table 1). Counties described as having the largest city with a population of 10,000 to 49,999 are most preferred (31.6%), closely followed by ones with a larger city population, 50,000 to 149,999 (30.5%). The state most preferred for retirement location is Oregon (12.5%). Other preferences in ranked order are: Arizona (11.2%), Washington (10.3%), Colorado (9.9%), Idaho (8.6%), Utah (7.5%), Missouri (6.1%), Nevada (6.0%), Wyoming (5.0%), and other states (22.9%).

Tests Comparing Current with Preferred Retirement Housing and Community Characteristics

Objective 1. Current housing tenure and tenure preference. Current home owners (96.0%) and renters (78.4%) both prefer to own their homes during the first ten years of retirement (see Table 2). The two groups differ ($p < .05$) in that more current renters (21.6%) than current owners (4.0%) prefer to rent their retirement housing.

TABLE 2. Chi-square Test Results Comparing Current Housing Tenure and Tenure Preference, with Control Variables

Current Housing Tenure		Own (%)	Preferred Rent (%)	Housing χ^2	Tenure df	n	p
Owners		96.0	4.0	307.40	1	5490	.000
Renters		78.4	21.6				
Controlled for Age							
40-44	Owners	96.5	3.5	23.28	1	1235	.000
	Renters	88.7	11.3				
45-49	Owners	96.9	3.1	43.34	1	1071	.000
	Renters	83.2	16.8				
50-54	Owners	95.3	4.7	60.20	1	1286	.000
	Renters	77.7	22.3				
55-59	Owners	95.9	4.1	141.76	1	1116	.000
	Renters	65.1	34.9				
60+	Owners	95.1	4.9	96.08	1	750	.000
	Renters	62.0	38.0				
Controlled for Gender							
Male	Owners	96.2	3.8	108.80	1	3234	.000
	Renters	82.1	17.9				
Female	Owners	95.6	4.4	167.76	1	2140	.000
	Renters	75.3	24.7				
Controlled for Marital Status							
Married	Owners	96.0	4.0	79.50	1	4344	.000
	Renters	84.7	15.3				
Unmarried	Owners	95.9	4.1	125.98	1	1111	.000
	Renters	72.9	27.1				
Controlled for Education							
High School or Less	Owners	95.1	4.9	71.86	1	777	.000
	Renters	71.7	28.3				
Beyond High School	Owners	95.8	4.2	81.96	1	1025	.000
	Renters	75.6	24.4				
Bachelors Degree	Owners	95.6	4.4	24.51	1	661	.000
	Renters	82.0	18.0				

TABLE 2 (continued)

Current Housing Tenure	Own	Rent (%)	χ^2 (%)	df	<u>n</u>	<u>p</u>
Controlled for Education (continued)						
Masters Degree	Owners	96.8	3.2	67.70	1	949 .000
	Renters	78.1	21.9			
Doctorate	Owners	96.0	4.0	27.30	1	1929 .000
	Renters	86.3	13.7			
Controlled for Income						
Less than \$25,000	Owners	94.0	6.0	74.07	1	911 .000
	Renters	73.7	26.3			
\$25,000-\$34,999	Owners	95.9	4.1	53.07	1	912 .000
	Renters	79.0	21.0			
\$35,000-\$49,999	Owners	97.3	2.7	102.70	1	1439 .000
	Renters	77.5	22.5			
\$50,000-64,999	Owners	----	----	χ^2 not valid		
	Renters	----	----			
More than \$65,000	Owners	----	----	χ^2 not valid		
	Renters	----	----			

In addition, owner and renters differ in their retirement tenure preferences when controlled for age, gender, marital status, educational level, and income. As age increases, current renters' ownership preference decreases (88.7% to 62.0%), while current home owners ownership preference remains relatively stable as their ages increase (96.5% to 95.1%). More male (82.1%) renters than female (75.3%) renters prefer ownership while both male (96.2%) and female (95.6%) owners prefer home ownership during the first ten years of retirement. Married owners (96.0%) and unmarried owners (95.9%) prefer ownership; more married renters (84.7%) than unmarried renters (72.9%) prefer ownership.

As educational level and income level each increase, current renters increasingly prefer ownership during the first ten years of retirement (71.7% to 86.3% and 73.7% to 77.5%, respectively). However, current owners retirement tenure preferences are similar when controlled for educational levels (95.1% to 96.0%) or income levels (94.0% to 97.3%). The Chi-square statistic was not a valid test for the two highest income levels; thus, only the first three income level results are included here.

Objective 2. Current housing structure type and structure type preference. Respondents currently living in single family detached houses prefer to live in single family detached houses (83.5%) during the first ten years of retirement and those living in other structure types prefer to live in other structure types (60.0%) (see Table 3). The two groups also differ when controlled for age, gender, marital status, educational level, and income level. When those who currently reside in other structure types are controlled for age, their preference is to live in single family houses in the youngest age category (51.7%). Then their preference for other structure

types increases from the second age category (54.4%) to the oldest age category (73.6%). Respondents' currently residing in single family houses preference for single family houses varies from 82.0% to 85.2% among the age categories.

TABLE 3. Chi-square Test Results Comparing Current Housing Structure Type and Structure Type Preference, with Control Variables

			Preferred Structure Type					
			Single Family ^a (%)	Other ^b (%)	χ^2	df	<u>p</u>	
Current Structure Type								
Single Family ^a			83.5	16.5	720.38	1	5387	.000
Other ^c			40.0	60.0				
Controlled for Age								
40-44	Single	Family ^a	83.5	16.5	100.98	1	1230	.000
	Other ^c		51.7	48.3				
45-49	Single	Family ^a	82.0	18.0	89.87	1	1053	.000
	Other ^c		45.7	54.4				
50-54	Single	Family ^a	83.3	16.7	164.37	1	1264	.000
	Other ^c		38.1	61.9				
55-59	Single	Family ^a	84.4	15.6	197.62	1	1091	.000
	Other ^c		33.1	66.9				
60+	Single	Family ^a	85.2	14.8	186.58	1	716	.000
	Other ^c		26.4	73.6				
Controlled for Gender								
Male	Single	Family ^a	86.8	13.2	374.01	1	3185	.000
	Other ^c		44.8	55.2				
Female	Single	Family ^a	78.3	21.7	292.28	1	2093	.000
	Other ^c		35.3	64.7				
Controlled for Marital Status								
Married	Single	Family ^a	85.1	14.9	412.06	1	4262	.000
	Other ^c		42.9	57.1				
Unmarried	Single	Family ^a	74.9	25.1	153.25	1	1092	.000
	Other ^c		36.8	63.2				
Controlled for Education								
High School or Less	Single	Family ^a	79.4	20.6	140.15	1	744	.000
	Other ^c		31.8	68.2				
Beyond High School	Single	Family ^a	79.9	20.1	120.42	1	1011	.000
	Other ^c		41.7	58.3				
Bachelors Degree	Single	Family ^a	84.1	15.9	70.89	1	650	.000
	Other ^c		45.0	55.0				

TABLE 3 (continued)

		Single Family ^a (%)	Other ^b (%)	χ^2	df	<u>n</u>	<u>p</u>
Controlled for Education (continued)							
Masters Degree							
	Single Family ^a	85.0	15.0	133.61	1	941	.000
	Other ^c	39.3	60.7				
Doctorate							
	Single Family ^a	85.8	14.2	168.22	1	1906	.000
	Other ^c	44.5	55.5				
Controlled for Income							
Less than \$25,000							
	Single Family ^a	76.7	23.3	116.72	1	884	.000
	Other ^c	40.0	60.0				
\$25,000-\$34,999							
	Single Family ^a	82.7	17.3	166.05	1	895	.000
	Other ^c	35.8	64.2				
\$35,000-\$49,999							
	Single Family ^a	85.6	14.4	171.56	1	1413	.000
	Other ^c	40.8	59.2				
\$50,000-\$64,999							
	Single Family ^a	85.7	14.3	54.32	1	1085	.000
	Other ^c	50.8	49.2				
More than \$65,000							
	Single Family ^a	83.6	16.4	89.35	1	973	.000
	Other ^c	35.4	64.6				

^aSingle family house detached from any other house

^bOther structure types, including townhouses, mobile homes on owned or rented lots, apartments, recreational vehicles and duplexes, triplexes or quadplexes

^cOther structure types, including townhouses, mobile homes on owned or rented rented lots, apartments, and duplexes, triplexes or quadplexes

Both males (55.2%) and females (64.7%) who currently reside in other structure types prefer to reside in other structure types, and both males (86.8%) and females (78.3%) currently residing in single family houses prefer them for housing during the first ten years of retirement. Married and unmarried respondents currently residing in single family houses (85.1% and 74.9%, respectively) prefer to retire in single family houses. Married and unmarried respondents currently residing in other structure types (57.1% and 63.2%) prefer them during retirement.

As the educational level of respondents who live in other structure types increases, their preference for retiring in other structure types varies between 55.0%-68.2%. The preference toward single family houses for those currently residing in them increases with increased educational level (79.4%-85.8%).

The preference for respondents living in other structure types is for the same structure type during the first ten years of retirement for all income levels except the fourth level where 50.8% prefer single family houses. Respondents of all income levels currently residing in single family houses prefer them (76.7%-85.7%) during retirement.

Objective 3. Number of years in county where present home is located and preference to retire in or near present community. Respondents' preferences to retire in or near the present community differ ($p < .05$) by their length of residency in or near the current county. As respondents' residency in the present county increases (less than 2 years-over 15 years), their preferences for remaining there in retirement increase, (44.4%-72.5%, respectively). While 55.6% of those with less than 2 years of residency prefer to retire somewhere else, 51.3% with 2-5 years residency, 58.0% with 6-10 years residency, 60.7% with 11-15 years residency, and 72.5% who have lived in their present county over 15 years prefer to retire there, $\chi^2 = (12, n = 5593) = 218.83, p < .000$.

When respondents' length of residency in the present county and their preference for remaining there or moving away for the first ten years of retirement are controlled for age, gender, marital status, educational level, and income level, differences are found. Younger respondents aged 40-45 who have shorter lengths of residency in their counties, less than 2 years or 2-5 years, prefer (55.0% and 53.9%, respectively) to retire somewhere else. As the length of residency in the county increases, 6-10, 11-15, and longer than 15 years, respondents' preferences for remaining in their present communities increase, (50.5%, 56.1% and 65.1%), $\chi^2 = (12, n = 1247) = 46.41, p < .000$. Respondents aged 45 through 49 years do not differ ($p > .05$) in their preference for remaining or moving for retirement. Those aged 50-54 years with less than 2 years and 2-5 years of residency in the county prefer (51.9% and 57.1%) to retire somewhere else; those with increasing lengths of residency (6-10, 11-15, and over 15 years) in the present county increasingly prefer (64.5%, 65.2% and 70.0%) to remain there during retirement, $\chi^2 = (12, n = 1304) = 41.96, p < .000$. In the next age category, 55-59 years, only those with less than 2 years of residency somewhat prefer (62.5%) to retire elsewhere; whereas, all other age groups' preferences to retire in the present community increase (58.6%, 63.9%, 66.7% and 75.4%) as length of tenure increases, $\chi^2 = (12, n = 1142) = 35.98, p < .000$. For those in the 60 plus age category, Chi-square cannot be reported as a valid test.

When controlled for gender, males with shorter residency (less than 2 years and 2-5 years) prefer (53.9% and 50.4%) to retire in another community. Those with longer lengths of residency in the present county prefer to retire there and as length of residency increases, their preference for retiring

there increases (58.3%-72.7%), $\chi^2=(12,n=3277)=140.34, p<.000$. Females with less than 2 years of residency prefer (57.5%) to retire somewhere else. With longer lengths of residency, females increasingly (53.5%-72.2%) prefer to retire in the present community, $\chi^2=(12,n=2174)=77.08, p<.000$.

Married respondents with less than 2 years of residency prefer to retire in another community (52.3%). Those with longer residency prefer to retire in the present community, and as length of residency increases their preference to retire in the same community increases (53.2%-72.8%), $\chi^2=(12,n=4396)=153.53, p<.000$. Unmarried respondents with shorter residency in or near the present county (less than 2 years and 2-5 years) prefer (63.9% and 55.2%) to retire to a different community. Whereas, unmarried respondents with longer lengths of residency in or near the present county prefer to retire in that community (53.3%-70.6%), $\chi^2=(12,n=1135)=71.67, p<.000$.

When controlled for educational level, the Chi-square statistic for those respondents with high school degrees or less is not a valid test. For respondents with schooling or training beyond high school, those with less than 2 years of residency in or near the present county prefer to move elsewhere during retirement (54.5%). Those with 2-5, 6-10, and 11-15 years of residency in or near the present county prefer to stay there during retirement (59.7%, 58.9%, and 58.9%). More of those with over 15 years of residency prefer to stay (71.0%), $\chi^2=(12,n=1047)=29.28, p<.01$. Respondents who have bachelor's degrees and less than 2 years of residency prefer to move (64.3%). Those with bachelor's degrees and other lengths of residency prefer to stay, but vary. Those with 2-5 years in or near the present county prefer (59.6%) to stay there for retirement. Only 51.6% of those with 6-10 years prefer to stay while 69.1% and 70.8% of those with 11-15 and over 15 years of residency prefer to stay, $\chi^2=(12,n=669)=27.37, p<.01$. Respondents with masters degrees and less than 2 years or 2-5 years of residency prefer to retire elsewhere (60.0% and 58.9%), while those with longer residency prefer to stay (54.9%-71.4%), $\chi^2=(12,n=959)=59.34, p<.000$. Those with doctorate degrees and through 5 years of residency prefer to move (53.2% and 51.6%). Those with longer residency (58.9%, 57.2%, and 70.7%) prefer to stay, $\chi^2=(12,n=1956)=86.87, p<.000$.

Those respondents in the lowest (less than \$25,000) income category who have lived in the present county for less than 2 years prefer to retire elsewhere (58.3%) while those with longer residency increasingly prefer to stay (53.2%-76.5%), $\chi^2=(12,n=930)=47.15, p<.000$. Those respondents with incomes ranging from \$25,000-\$34,999 who have lived in or near the present county for less than 2 years and 2-5 years prefer to move for retirement (61.9% and 54.3%), and those with increasingly longer residency prefer to stay (58.7%-72.0%), $\chi^2=(12,n=924)=56.78, p<.000$. Respondents in the \$35,000-\$49,999 and \$50,000-\$64,999 income categories with 2-5 years of residency prefer to retire to some other location (50.8% and 53.7%). Those with less than 2 years residency (52.0% and 57.9%) and more than 5 years of residency (54.5%-74.2% and 53.0%-69.2%) increasingly prefer to stay, $\chi^2=(12,n=1458)=72.20, p<.000$ and $\chi^2=(12,n=1105)=49.38, p<.000$, respectively.

Respondents in the highest income category (\$65,000 or more) with less than 2 years residency (60.6%) prefer to retire elsewhere. Those in the other income categories prefer to stay; however, as residency increases from 2-5 years and 6-10 years, more want to stay (60.2% and 63.3%). Fewer of those with 11-15 years of residency prefer to stay (55.8%) and more (70.4%) with over 15 years of residency, $\chi^2=(12, n=999)=35.29, p<.000$.

Objective 4. Current county as described by size of largest city within the county and preference for county based on size of largest city within the county. The Chi-square statistic was not a valid test. Thus, there are no results which can be reported.

Objective 5. Current state and state preference. The majority of the respondents in eight of the nine states prefer to retire in their respective states. Only in Wyoming is there a majority who desire to retire out of state. There is a difference, however, in the percentages of respondents who want to retire in their own states: Oregon, 78.4%; Arizona, 75.7%; Colorado, 69.0%; Utah, 63.6%; Idaho, 60.2%; Washington, 57.0%; Nevada, 53.7%; Missouri, 53.3%, and Wyoming, 44.9% ($\chi^2=(72, n=5662)=21933.64, p<.000$).

Respondents differ in their retirement state preferences when controlled for age, gender, marital status, educational level and income. However, when controlled for age, gender, educational level and income, no consistent patterns of preference are apparent. For example, in Arizona, more respondents in the second age category (81.1%) than in the first age category (61.6%) prefer to retire in Arizona. Then, fewer in the third age category (77.5%) and increasingly more in the fourth (78.5%) and fifth (79.1%) age categories prefer their own state. Six patterns evolve for state preference when controlled for age; two patterns when controlled for gender and for educational level (states are split 3:6 in each); three patterns when controlled for marital status (in 7 states more married respondents prefer to retire within their own states; in Arizona more unmarried (76.3%) than married (75.7%) and in Oregon both equally prefer (78.2%, 78.2%) to retire in-state); and five patterns when controlled for income.

Discussion

During the first ten years of retirement, most maturing respondents in this study prefer to own their single family detached houses in the communities and states in which they currently reside. So, it would seem that business entrepreneurs targeting retirees in the first ten years of retirement would direct their strategies toward the local markets of those reaching retirement age in each geographical area. Riche in 1986 reported that the major reason for business "...failure to capture a large share of a burgeoning [retirement] market lies in the preferences of the elderly: most of them want to stay in their current homes, or at least in their communities" (p. 43). Smart (1983) agrees but contrastingly also believes that there is no single market. A diverse range of data sources can be used to facilitate the development of more revealing and specific findings for questions that have been unanswerable regarding the maturing markets (Golant, 1980).

As one looks into the retirement preferences among the respondents studied here, it becomes apparent that instead of one market segment for the 65-74 age group there are indeed submarkets whose housing and community retirement preferences can be targeted. Maturing homeowners want to own their retirement housing, including those of different ages, gender, marital status, educational level, or income. They have achieved America's cultural housing norm (Morris & Winter, 1978) and prefer to have it during those early years of retirement. Renters, while more prefer to own their retirement housing than to rent it (78.4% and 21.6%, respectively), exhibit additional differences that need further investigation. There seems to be a great deal of variation within the renter subgroup by age with only 62.0% of those age 60 and over preferring home ownership. Have the younger renters, 40-44 years, been closed out of the ownership market but feel that they will be able to get into home ownership soon and still prefer it for retirement? The other renter subgroups seem to vary consistently. Male renters, married renters, more educated renters and higher income renters seem to have stronger preferences for home ownership.

Another American cultural housing norm, that of living in single family detached houses, has the retirement preference vote of those who currently reside in them (83.5%). Interestingly, females (78.3%), the unmarried (74.9%) and those with lower incomes (76.7%) who currently live in single family houses show less preference for them in retirement than most other control variable groups who have achieved this norm.

Respondents currently residing in other structure types, for the most part, prefer them for retirement. Younger respondents, age 40-44 years, and higher income (\$50,000-\$64,999) respondents have preferences toward single family houses (51.7% and 50.8%, respectively); otherwise the current type of structure and retirement structure preferences are consistent. Residents of single family houses prefer single family houses; residents of other structure types prefer other structure types for the first ten years of retirement.

Community and state preferences are similar in that those with longer residency are more likely to prefer to remain in the same community and those residing in a particular state are more likely to prefer it for retirement location. Consistently, community preference becomes greater as length of residency increases, including consideration of respondent's age, gender, marital status, educational level, or income. Respondents' retirement state preferences may be following a general trend. Scattered locations in Western Oregon and Arizona have been shown as destination retirement counties, defined as "...counties in which the net in-migration (1970 to 1980) of people aged 60 and over equaled at least 15 percent of the people in the county of that age in 1980" (Rural Retirement Areas, 1986:32). Respondents in two states, Oregon and Arizona, show greater preference to retire in-state, and Oregon and Arizona are the two most preferred retirement states of the respondents in this study. The use of demographic variables to help in understanding retirement state preferences does not seem to be fruitful as few consistent patterns emerged among the states.

The preferences of those looking toward their first ten years of retirement do indeed seem to fit into submarkets. Retirees can be dicotomized as: owners:renters; residents of single family houses:residents of other structure types; and stayers:movers. Researchers need to combine demographic characteristics to reveal more descriptive, encompassing submarket information. Who wants to own single family houses, other structure types? Who wants to rent single family houses, other structure types? What are the preferences of those who plan to relocate within the same state, move to another state? Do those who plan to retire in the same community plan to move and, if so, what are their housing preferences?

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THE 1989 OUTLOOK FOR FOOD PRICES

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The Consumer Price Index (CPI) for food in 1988 has risen at near the same rate as it did in 1987, about 4 percent. A similar increase is expected in the CPI for all items which means that food prices in 1988 have kept pace with prices of other goods and services in the general economy. Consumers, however, are more aware of changes in food prices than in price changes of other goods and services because food is a basic necessity. Food is purchased more often than most other goods which also heightens consumer awareness of price changes. This year, heavy media coverage of the drought and the warning of eminent food price inflation raised consumer awareness even more.

Major factors influencing retail food prices are: farm prices, costs of processing and distributing food, and consumer demand. Farm prices for a number of commodities have increased this year. A combination of drought and strong consumer demand have pushed average farm prices for food commodities up 3.5 percent this year. Charges for processing and distributing food have also increased about 5 percent, mainly due to higher costs for packaging materials, transportation, and labor. The creation of new jobs and the resulting higher employment has led to an approximate 3 percent rise in real disposable personal income. Such a rise in real income supports higher consumer demand for food.

Factors affecting food prices have impacted different foods in different ways. Strong consumer demand has had a major impact on some foods while higher farm prices and higher processing costs have affected others. A discussion of the individual foods will help to explain how these factors have affected food this year and provide some insight as to what might be expected in 1989.

Meats

Per capita consumption of total red meat and poultry will reach 220 pounds this year, the highest ever. While beef production for 1988 is down about 1 percent from last year, pork production is up about 7 percent and poultry production is up 5 percent. With larger supplies, retail pork prices have averaged slightly below the high levels of a year earlier, but have remained high relative to recent history. Despite larger supplies, poultry prices have increased, reflecting strong consumer demand. Heavy advertising and promotion campaigns during the summer for chicken items by fast food firms has helped to stimulate demand. This fall, retail pork and poultry prices have decreased as

supplies increased seasonally. For the year, retail beef prices are expected to average about 5 percent above 1987, retail pork prices will average about 3 percent below the high levels of last year, and poultry prices will average 5.5 percent above 1987.

In 1989, total red meat and poultry supplies will be second only to this year. Beef production is expected to decrease 6 to 8 percent from 1988. Pork production is likely to remain about level with this year. Poultry production is expected to increase 2 to 3 percent. Even though production will be down, beef prices next year are expected to be 1 to 3 percent above 1988. Pork prices will rise about the same as beef. Poultry prices are expected to decrease 4 to 7 percent as supplies continue to grow.

Cereals and bakery products

The CPI for cereals and bakery products this year is expected to average 6.5 percent above 1987. There are several reasons for the strong increase. First, demand for cereal products has increased considerably in the past few years. Consumers are becoming more health-conscious and find cereals a good source of nutrition. Cereals are also easy to prepare. The proliferation of new cereals on grocery shelves, all claiming high fiber and other nutritional benefits, is strong evidence of the new health trend. Such strong demand puts upward pressure on prices.

Next, the cost of processing and distributing food has increased. Such costs account for about 90 percent of the retail price of cereals and bakery products. Most of the increase comes from a rise in the price of packaging materials. Prices of paper products, plastic wrap, and metal foil used in packaging cereal and bakery products have increased 17 percent, 13 percent, and 22 percent respectively. When passed through to the consumer, these increased packaging costs could add 1 percent to the CPI for cereals and bakery products.

Finally, farm prices of food grains have increased 50 to 60 percent this year. Most of the increase in grain prices was caused by smaller supplies resulting from the drought. The cost of grain in cereal and bakery products accounts for about 10 percent of the retail prices. Therefore, the rise in grain prices could theoretically add 5 to 6 percent to the retail price if passed through to consumers.

The CPI for cereals and bakery products in 1989 is expected to rise 4 to 7 percent above 1988. Strong consumer demand will continue to exert upward pressure on prices. A slightly higher rate of inflation in the general economy will push costs of processing and distributing food higher. Some lingering effects of the drought will be felt as grain price increases, which occurred this year, will continue to influence consumer prices in 1989.

Fresh vegetables

The CPI for fresh vegetables in 1988 will average nearly 6 percent above 1987. In the first quarter of 1988, a disease affecting lettuce continued to plague production. Lettuce prices were record-high toward the end of 1987, and those high prices carried over into the first quarter of 1988. Lettuce has a strong influence on the total fresh vegetable CPI and the index rose more than would have been expected otherwise. The fresh vegetable CPI declined in the second quarter as the supply situation returned to more normal levels. During the third quarter, however, the impact of the drought pushed the index up at a

time when fresh vegetable prices normally show a seasonal decline. During the summer, fresh vegetables are supplied from local sources as well as the traditional irrigated commercial growing areas in California. In the broad area effected by the drought, local vegetable production was damaged and supplies had to shipped in from more distant sources, causing retail prices to increase.

Vegetable production for the fresh market will likely expand in 1989 because of strong grower prices this year. Barring a winter freeze in Florida or another summer drought, fresh vegetable prices are likely to remain relatively stable. The fresh vegetable CPI in 1989 is expected to show little change from 1988.

Processed vegetables

The major sources of peas, snap beans, and sweet corn for canning are in the upper midwest which was severely hit by the 1988 drought. The 1988 pack of these vegetables was reduced considerably. As a result, prices of canned vegetables have increased. While a specific price index for these items is not available, the information that is available suggests a rise of about 15 percent.

Supplies of canned vegetables will remain low for most of next year. Retail prices will likely continue to increase as stocks dwindle. Prices will likely level off as the new pack becomes available toward the end of next summer.

Fresh fruits

The CPI for fresh fruits rose nearly 8 percent this year. Apple production was particularly large last fall, and prices through most of this year have been below a year ago. Higher prices for other noncitrus fruits, however, reflect slightly smaller supplies this year. Banana imports have been below last year as some shipments were returned because of insect infestations. Also, labor disruptions in Colombia stopped banana shipments from that source.

Fresh fruit prices will likely rise again in 1989 from a combination of strong domestic demand and strong export demand. Orange production for fresh market will be larger but increased exports to Japan could dampen increases in domestic supplies, keeping prices strong. Apple prices will also be higher as this season's crop is smaller than last year's. The CPI for fresh fruit is expected to rise at about the same rate in 1989 as in 1988.

Processed fruit

The CPI for processed fruit increased more than 10 percent in 1988. Higher prices for frozen concentrated orange juice (FCOJ) were the primary cause. Domestic production of FCOJ must be supplemented by imports from Brazil in order to meet domestic demand. Higher Brazilian FCOJ prices have caused domestic retail prices to rise this year.

Increased orange production this season and the resulting larger supplies of FCOJ will limit the need to import. As a result, FCOJ prices likely will remain stable in 1989.

Dairy products

The CPI for dairy products has increased about 2 percent this year. Fresh milk and cream prices have risen about 2 percent. Cheese prices have increased about 4.5 percent above a year ago while ice cream and butter prices have remained level this year. The small rise in the dairy CPI dampens increases among the other food categories.

In 1989, the CPI for dairy products will rise at a slightly higher rate than in 1988. Export demand for nonfat dairy products will boost prices. Prices of manufactured dairy products will be affected by higher processing and distribution costs. The CPI for dairy products in 1989 is expected to rise 2 to 4 percent above 1988.

Eggs

The CPI for eggs has risen a little over 5 percent this year. Higher feed grain prices resulting from the drought has caused producers to cut back on production. In addition, use of eggs in processing increased, further reducing supplies of cartoned table eggs. As a result, egg prices increased sharply in the third quarter. Egg prices are expected to remain high for the last quarter of 1988 because of strong export demand.

Retail prices for eggs will continue to rise in 1989. Production is expected to decrease reflecting poor returns to producers. Retail prices of eggs in 1989 will average 15 to 20 percent above 1988.

Fats and oils

The major products in the fats and oils category of the food CPI are, salad and cooking oils, margarine, and peanut butter. The major farm commodities that effect these products are soybeans and peanuts. The 1988 peanut crop was larger than a year ago and farm prices have not increased. The soybean crop was hurt by the drought and soybean oil prices increased during the summer in anticipation of smaller supplies. Vegetable oil supplies, however, have been ample world wide and spot market prices for soybean oil have returned to their predrought levels. Nevertheless, retail prices of margarine, salad oils, and cooking oils have increased 5 to 8 percent in response to higher soybean oil prices that manufacturers faced during the summer. Peanut butter prices have remained level over the year and have dampened the increase in the total fats and oils index.

In 1989, the CPI for fats and oils is expected to rise at near the same rate as in 1988. Supplies of vegetable oils are ample and will likely remain so through next year. Strong demand and increased processing and marketing costs will be responsible for price increases next year.

Changes in Food Price Indicators, 1986 through 1989

	1986	1987	1988p	1989f
Consumer Price Indexes	Percent Change			
All food	3.2	4.1	4.0	3 to 5
Food away from home	3.9	4.0	3.9	4 to 6
Food at home	2.9	4.3	4.0	3 to 5
Meat, poultry and fish	4.3	6.4	3.2	0 to 3
Meat	3.2	7.1	2.0	1 to 3
Beef and veal	0.6	7.6	4.9	1 to 3
Pork	8.2	8.2	-2.9	1 to 4
Poultry	7.5	-1.5	6.6	-4 to -7
Fish and seafood	9.2	10.6	6.1	4 to 7
Eggs	6.9	-5.9	5.2	15 to 20
Dairy products	0.2	2.5	2.0	2 to 4
Fats and oils	-2.2	1.5	4.1	3 to 6
Fruits and vegetables	0.9	8.8	7.3	3 to 6
Fresh fruits	2.1	11.3	7.8	6 to 9
Fresh vegetables	4.0	12.9	5.8	0 to 3
Processed fruits and vegetables	-1.6	3.5	8.1	4 to 7
Processed fruits	-2.9	4.1	10.6	4 to 7
Processed vegetables	-0.2	2.7	4.7	4 to 7
Sugar and sweets	3.2	1.8	2.7	4 to 7
Cereals and bakery products	2.8	3.5	6.4	4 to 7
Nonalcoholic beverages	5.9	-2.6	0.0	4 to 7
Other prepared foods	2.6	4.2	3.6	3 to 5

p=preliminary f=forecast

Market Basket Statistics

The market basket statistics represent the retail cost, the farm value, and the farm-to-retail price spread for a fixed market basket of domestically produced farm foods. The farm value of food and the farm to retail price spread help us understand the underlying causes of food price changes. The farm value of food accounts for about 30 percent of the retail and depicts that part of the consumer food dollar which goes to farmers. The farm-to-retail price spread represents that part of the consumer food dollar which goes for processing and distributing foods from the farm gate through the retail store.

The retail cost of the market basket is expected to increase 4.4 percent for 1988. The rate of increase is greater than that of the CPI for food, but the market basket does not include nonalcoholic beverages. The CPI for nonalcoholic beverages has not changed this year, and therefore, has moderated the rise in the CPI for all food. Contributing to the market basket increase was a 3.7 percent rise in the farm value of food, and a 4.8 percent increase in the farm-to-retail price spread.

The 3.7 percent rise in the farm value of food came primarily from higher farm prices for food grains resulting from the drought, and higher poultry prices resulting from strong demand. Lower prices for hogs and milk this year lowered the farm value for meats and dairy which partially offset higher farm values of other food groups.

The farm to retail price spread has risen 4.8 percent this year. The spread accounts for the costs of processing and distributing foods which we call marketing costs. The major inputs are, labor, packaging, transportation, and energy and account for 85 percent of all marketing costs. Our marketing cost index, which measures changes in prices of inputs, increased 3 percent this year. While prices of inputs increased, so did the volume of inputs. The number of workers has increased, particularly at the retail level. The addition of instore services such as deli services and salad bars require additional workers. Increased use of packaging materials are needed to accommodate the many new products available in the cereals and prepared foods categories. The increased use of marketing inputs along with higher prices for inputs have added significantly to the farm-to-retail price spread.

In 1989 we expect the spread to rise at near the same level as 1988. The farm value of food is expected to increase as farm prices of cattle, eggs, milk, grains, and fresh fruits rise.

Percent Changes in Market Basket Statistics

	1986	1987	1988p	1989f
Retail cost	2.1	5.0	4.4	3 to 5
Farm-to-retail spread	3.7	6.2	4.8	3 to 5
Farm value	-1.4	2.3	3.7	2 to 4

p-preliminary f-forecast

Summary

The CPI for food in 1989 will increase at about the same rate as it did in 1988. Prices for eggs, fruits and vegetables, and cereal and bakery product will have the strongest impact on the increase. Prices for meats and poultry will dampen the increase. Strong consumer demand in 1989, prompted by increased disposable personal income, will have a positive impact on food prices as well. The effect of the 1988 drought on the food CPI in 1989 will be too small to measure, after having added about 0.5 percent in 1988.

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FOODBORNE DISEASE: A LOOK AT A CONTINUING PROBLEM

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Introduction

Foodborne disease (i.e., disease caused by infectious agents or toxins in or on foods) is a topic of continuing concern to both producers and consumers. Given the number of different pathogens that can be associated with food, it is difficult to accurately assess the extent of the foodborne disease problem in this country. In a recent review, Archer and Kvenberg (1) estimated that there were between 24 and 81 million cases of foodborne disease per year in the United States. A somewhat more conservative estimate of 6,496,000 cases/year has been proposed by Bennett et al (2). Bennett's estimate is based primarily on data available for known foodborne pathogens such as *Salmonella*, *Campylobacter*, and *Staphylococcus aureus* (Table 1), and makes use of fairly well established multiplication factors for calculating incidence based on reported numbers of cases. The estimate of Archer and Kvenberg includes a broader range of potential pathogens, and uses somewhat more speculative factors in calculating incidence; the actual incidence of foodborne disease probably lies somewhere between these estimates.

Clinically, most of the major foodborne pathogens cause gastroenteritis (diarrhea, vomiting, abdominal pain). It should be emphasized, however, that symptoms of foodborne illness are not necessarily confined to the gastrointestinal tract. Pathogens such as *Salmonella* may get into the bloodstream (septicemia), particularly in older or debilitated patients or infants. *Yersinia enterocolitica* can cause mesenteric adenitis, producing abdominal pain that mimics appendicitis; *Streptococci* carried by food can cause pharyngitis. Botulism can result in neuromuscular paralysis, as can Paralytic Shellfish Poisoning. Enterohemorrhagic *E. coli* produce a toxin that can cause intravascular hemolysis and renal failure (the hemolytic-uremic syndrome). A patient's immune response to certain pathogens can also cause illness: some persons are predisposed to development of a reactive arthritis (Reiter's Syndrome) after infection with pathogens such as *Salmonella* or *Shigella*, while *Y. enterocolitica* has been implicated as a cause of erythema nodosum, polyarteritis, and a variety of other autoimmune conditions.

A. Major Foodborne Pathogens

While we are still trying to define the role of some microorganisms in foodborne disease, several bacterial species have come to be well recognized as major causes of foodborne illness. As shown in Table 1, *Campylobacter* and *Salmonella* are probably the two most important of these.

TABLE 1: MAJOR FOODBORNE PATHOGENS AND THEIR ESTIMATED ANNUAL INCIDENCE

<u>ETIOLOGIC AGENT</u>	<u>estimated cases/year</u>
<u>Campylobacter</u>	2,100,000
<u>Salmonella</u>	1,920,000
<u>Staphylococcus</u>	1,513,000
<u>Streptococcus</u> Group A	500,000
<u>Trichinosis</u>	100,000
<u>Shigella</u>	90,000
<u>E. coli</u> - pathogenic	50,000
<u>Clostridium perfringens</u>	10,000

(Data from Bennett et al [2])

1) Campylobacter

Campylobacter jejuni is a recently recognized bacterial species that can cause diarrhea, abdominal pain, fever, nausea, and vomiting (3). Up to 50% of patients with Campylobacter infections report having bloody diarrhea. Illness can range from mild diarrhea lasting less than 24 hours to severe, bloody diarrhea with abdominal pain and fever lasting several weeks; in one study the average duration of illness was 13.5 days (4).

C. jejuni appears to be present in the intestinal tract of most mammalian and avian species. A number of early C. jejuni outbreaks were associated with consumption of raw milk or untreated water (5). More recent epidemiologic data suggest that up to 48% of C. jejuni cases are attributable to consumption of chicken (4). The organism has been isolated at many points during the slaughter and processing of broiler chickens, and a significant proportion of broiler chicken carcasses available for retail sale carry C. jejuni (Table 2).

Because of the lack of a good national reporting system, it is difficult to determine whether the overall incidence of Campylobacter infections is increasing or decreasing. However, it is clear that C. jejuni constitutes a significant foodborne problem: there is a definite need for further epidemiologic data (including incidence data) on this organism.

2) Salmonella

Salmonella are bacteria that cause diarrhea, abdominal pain, fever, nausea, and vomiting (6). Diarrhea usually lasts less than 7 days, but occasionally persists for as long as several weeks; in one recent study the average duration of illness was 10.25 days (4). Bacteremia (presence of bacteria in the blood) occurs in less than 5% of adults with gastroenteritis. This rate may be higher in children and persons with major underlying diseases (including AIDS). The case fatality ratio for Salmonella has been estimated to be approximately 0.1% (2).

Salmonella is present in the gastrointestinal tract of mammalian and avian species, and is often transferred to the surface of animal carcasses during slaughter and processing. Using broiler chickens as an example, nationwide surveys in conducted in 1967 and 1979 demonstrated extreme variability in the Salmonella contamination rates among various lots of birds, with an incidence range of 7.5% to 73.7% in 1967 and 2.5% to 87.5% in 1979 (7). Data on rates of contamination of chicken carcasses from several published studies are shown in Table 2.

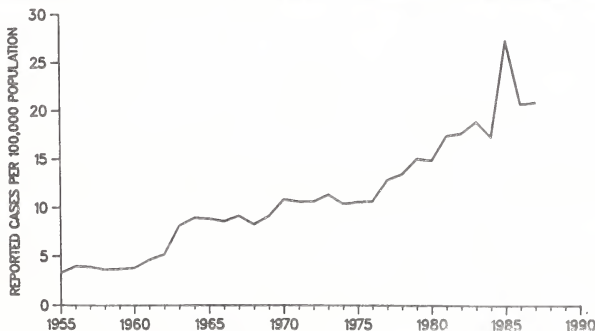
TABLE 2: RATES OF SALMONELLA AND CAMPYLOBACTER CONTAMINATION OF CHICKEN CARCASSES

Microorganism	Part of Chicken Sampled and Stage of Procedure	No. Sampled	Percent Positive	Reference
Campylobacter	chicken livers	40	30%	8
	mechanical deboning of chicken	40	12.5%	8
	chicken livers from giblet chiller	36	69.4%	9
	wings ready for packaging	36	66.7%	9
	wings on arrival at supermarket	94	82.9%	10
	chicken; supermarket shelf	862	23.1%	11
	chicken; supermarket shelf	862	4.3%	11
Salmonella	whole, eviscerated chickens; chill tank exit			
	in 1967	597	28.6%	7
	in 1979	601	36.9%	7
	whole, eviscerated chickens; chill tank exit	215	11.6%	12
	whole, eviscerated chickens; chill tank exit	171	20.5%	13
	chill tank exit			

(From: National Research Council, Poultry Inspection: The Basis for a Risk-Assessment Approach [14])

There has been a slow but steady increase in the overall incidence of Salmonella cases reported to the Centers for Disease Control during the past several decades, from approximately 4/100,000 population in 1955 to 22/100,000 in 1987 (Figure 1)(15). It has been estimated that these reported cases represent 1%-2% of the actual number of cases that occur (accounting for the projected incidence of approximately 2 million cases given in Table

SALMONELLOSIS (excluding typhoid fever) - By year, United States, 1955-1987



(From: Centers for Disease Control, Summary of Notifiable Diseases, United States, 1987 [15])

1 [2]). While these numbers are clearly subject to a variety of ascertainment and reporting biases, this slow, steady increase (which has not been seen with other enteric pathogens, such as *Shigella*) is disturbing. These data emphasize the need for continuing research on *Salmonella*, and the importance of implementing appropriate control programs for this pathogen.

In contrast to the slow increase that has been seen in the overall incidence of *Salmonella*, the incidence of one particular serotype, *Salmonella enteritidis*, has shown a striking increase since the early 1980's, particularly in Northeast and Middle Atlantic states: in the Northeast the reported isolation rate for this serotype increased from 1.12/100,000 population in 1976 to 7.16/100,000 population in 1986 (16). Epidemiologic studies have shown a strong link between *S. enteritidis* infections and consumption of Grade A eggs (16,17). *S. enteritidis* has been isolated from bulk raw eggs, and from egg contents (primarily yolk) of individual eggs. The organism has also been isolated from ovarian tissue of hens, and there have been experiments suggesting that transovarian transmission of *S. enteritidis* can occur (personal communication, Paul Blake, Lisa Lee, CDC). These data are quite disturbing, and, if transovarian transmission of *S. enteritidis* can be conclusively demonstrated, suggest that existing efforts (disinfecting, grading) to control *Salmonella* contamination of eggs may be inadequate to prevent spread of the infection.

B. Control of Foodborne Diseases

Control of foodborne disease can be accomplished at two levels. At the producer level, efforts can and should be made to minimize contamination of food with potentially pathogenic microorganisms. The National Academy of Sciences/National Research Council has published a series of reports that deal with this problem: "An Evaluation of the *Salmonella* Problem" (18); "An Evaluation of the Role of Microbiologic Criteria in Foods and Food Ingredients" (19); "Meat and Poultry Inspection: The Scientific Basis of the Nation's Program" (20); and "Poultry Inspection: The Basis for a Risk-Assessment Approach" (14). Recommendations in these reports should be reviewed and serious consideration given to their implementation. As already pointed out, there is also a need for continuing government and industry sponsored research on the incidence and control of specific microorganisms such as *Salmonella* and *Campylobacter*.

Assuming that total elimination of pathogenic organisms from the nation's food supply is not a realistic short-term goal, there is also a need for continuing consumer education on appropriate food preparation practices. Contaminating microorganisms are in most instances destroyed by cooking: the risk of illness is negligible if food is adequately cooked, cross-contamination of foods within the kitchen is avoided, and food is handled properly after cooking (i.e., there is no time-temperature abuse). Again, both government and industry should be active in educating consumers about the risk and means of preventing foodborne disease.

In summary, foodborne illness is a significant and continuing problem in this country. There is no indication that the incidence of foodborne disease is decreasing, and, if anything, there may be a slow increase in the incidence of infection with organisms such as *Salmonella*. At the producer level, efforts need to be made to minimize carriage and transmission of potentially pathogenic microorganisms; at the same time, consumers should be made aware of the importance of good food preparation practices in minimizing the risk of foodborne illness.

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Outlook '89 Session #31

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THE METEOROLOGICAL CAUSES OF DROUGHT AND LONG-TERM CLIMATE PATTERNS

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Introduction

The Drought of 1988 in North America was an emphatic reminder of our national dependence on weather and climate. Relatively small deviations from the normal climate state, when added to the natural variability which occurs from place to place, are able to cause major dislocations to agricultural enterprises, energy allocations, water resources, and transportation.

The Climate Analysis Center of the National Weather Service is responsible for the monitoring of these climate anomalies as they evolve and for the diagnostics and prediction of the short-term climate patterns when they can be identified. During the summer of 1988, 12 Drought Advisories were issued. They included current information on surface temperature and precipitation, as well as a brief evaluation of water resources and impacts of drought on agriculture and forests. In particular, these advisories supplemented the information appearing in the Weekly Weather and Crop Bulletin which is published jointly by a detachment of the Climate Analysis Center working with the World Agricultural Outlook Board at the USDA.

Although our analyses draw heavily upon observed meteorological conditions, the topic and even the definition of drought is exceedingly complex. While meteorological drought is caused by short-term precipitation deficiencies, hydrological drought depends on the status of reservoirs, stream flow and ground water in addition to meteorological conditions. Agricultural drought is influenced by the surface soil moisture as well as the timing of precipitation events relative to the growth of a specified crop; climatic drought is described by an integration soil moisture deficit with surface temperature and precipitation to obtain a drought index with memory; e.g., the Palmer Drought Index. All aspects of drought were present this year in North America.

When the 1988 Drought is compared to events in this century, in some respects it ranks with the most severe in the 1930's. This is not surprising since the climate of the North American plains and Midwest is highly variable. Long-term water resources depend strongly on the development of winter storms and the resultant snow pack, while the summer continental rains depend on the path of synoptic-scale and mesoscale frontal systems.

However, there are new threats to climate stability of which we are now becoming aware. An increase in global carbon dioxide and other trace gases in the atmosphere have been observed which, by itself, would cause an increase in surface temperatures on the earth. However, there are many other factors such as clouds, oceans and surface vegetation which could moderate (or amplify) the effect. Therefore, it is with grave concern that we observe the current drought conditions within the context of an apparent long-term rise in global temperatures.

As a result of a broad study in global climate dynamics, there are now some reasons to expect an improvement in capability to monitor and predict climate anomalies on a monthly, seasonal and even interannual time scale. However, these research results need to be put into operational practice and be tested more completely. This type of technology to monitor and predict the evolution of the climate state requires substantial new resources - computers and model-building, satellite technology and the improvement of the global data collection system. The Drought of 1988 helps to answer the question, "Is it worth it?"

U.S. Drought in 1988

The accompanying figures describe the drought conditions as they evolved from early Spring in the Midwest. Subsequently, the high plains were affected by mid-summer drought and heat. The far west has experienced persistent dry conditions over several years.

An acute period of drought (April, May, June) was focused in the Midwest where up to 26% of the area received less than one-half the normal precipitation. Records were set in many climate divisions as the driest on record (58 years).

A symptom of this drought period was an upper-level ridge of high pressure and anticyclonic flow which was displaced northward. Consequently, the NE sector of the U.S. was shielded from the normal path of spring cyclones and precipitation.

Subsequently, during the summer period (July, August) the upper-level flow resumed its more normal west-east flow, and a series of cyclonic storms relieved the short-term drought conditions in the eastern part of the country. However, the long-term drought index indicated in late July a peak 40% of the U.S. was covered by severe/extreme drought conditions. At the same time record-breaking temperatures for the summer were located to the west in the plains states.

A historical perspective on the 1988 Drought shows that it can be compared to the worst drought conditions (1934, 1936) on record. However, it is important to recognize that the conditions in the 1930's were sustained over several years. Nevertheless, the national precipitation deficiency for January-August period of 1988 ranked second in severity. The summer temperatures for the nation as a whole also ranked second hottest.

The impacts of the 1988 Drought were especially notable in agriculture (preliminary figures): spring wheat yield was 49% of average; corn yield was 64% and soybeans was 76%; in transportation: the lowest river levels in 50 years were reported on the Mississippi river system; in forest fires: the acreage burned was (4.1 million) more than 3 times greater than expected.

Climate Variability

Continental droughts are a normal consequence of variable weather patterns and climate. We can describe the conditions by other symptoms in addition to precipitation deficiency: deficits in snow pack or surface moisture, displacement of the jet stream and persistent, blocking features, or, the absence of a trajectory for low level moisture from the Gulf. However, these symptoms are simply an alternative description for the slowly changing, but basically chaotic behavior of the atmosphere; periods of drought and surplus appear on an irregular basis.

However, we now stand at the edge of an important improvement in our understanding of the root causes in the global fluctuations in climate. This understanding is based on improvements in global observations (conventional, oceanic buoys/ship and satellite-based) and their subsequent interpretation in diagnostic studies and models. The improvements in prediction will be based on the development of model technology and computer resources.

There are several global climate features which have been identified which are relevant to development of seasonal anomalies.

1. The El Niño/Southern Oscillation (ENSO) is recognized primarily by an irregular fluctuation in sea surface temperature from +2°C (August 1987) to -2.5°C (November 1988) across a major region of the tropical Pacific Ocean. The response in the atmosphere is to modulate the annual cycle of the major circulation features in the sub-tropics (e.g., the Indian monsoon), and even to influence precipitation anomalies in North America.
2. The Quasi-biennial cycle (QBO) is described by the reversal of E-W wind in the tropical stratosphere. However, there is statistical evidence of important middle latitude influences; e.g., frequency of hurricanes and fluctuations in continental precipitation and temperature.
3. Ocean-atmosphere interaction is now recognized as an important factor in the determination of persistent (monthly, seasonal) climate anomalies. The ocean covers 71% of the earth's surface, and the tropical ocean, especially, is the source of energy and moisture in the earth's heat budget.

Climate Trends

There is a growing concern by the international community of scientists that we are on a path to massive global warming of the climate system. There is no doubt about the observed increases in carbon dioxide and other trace gases. However, there is not yet a consensus on whether the current trends in surface temperature are caused by the "greenhouse" effect, or simply part of natural climate variability. Certainly, the 1988 Drought cannot be taken as prima facie evidence for global warming, since similar conditions have occurred many years before (1934, 1936).

Nevertheless, global warming is a real threat, and in view of current temperature trends and several years (1981, 83, 87) of record high global mean temperatures, the problem is of immediate concern. It is important to realize that current model projections are designed for research objectives and are not accurate in their regional details. Nevertheless, models agree that global

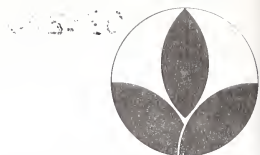
warming would not have a uniform effect on regional scales, and that the continental U.S. may suffer more frequent drought conditions.

Conclusion

Drought conditions occur in many places on the globe and are a natural result of climate variability. The causes of drought are complex and are related to global air-sea interaction and the characteristic of atmospheric circulation. We are now at the edge of applying new understanding of the climate system to the monitoring and prediction of drought conditions. An additional factor of new concern is the potential for global warming which could adversely affect climate in continental areas. Although we cannot now predict the climate 6 months in advance, the Climate Analysis Center will focus attention on early signs of drought if they occur, and will continue to monitor the evolution of meteorological conditions on a near-real-time basis.

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IMPLICATIONS OF THE 1988 DROUGHT FOR AGRICULTURAL PRODUCTION AND STOCKS

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The 1988 drought has brought about the steepest one-year decline in the world's grain stocks ever recorded. This reduction in grain supplies has changed the market environment from one of surplus stocks and low prices to one of tightening stocks and high prices. There are three consequences of this changed market environment. First, age-old fears of global food scarcity have been resurrected in some quarters. Second, the policy setting for the current Uruguay round of trade negotiations has changed. And, third, the upcoming debate about domestic farm policy may well take a different shape than if the drought had not occurred. With these consequences in mind, I offer a perspective on the implications of the 1988 drought for agricultural production and stocks.

Without question, the 1988 drought was the most pervasive early season drought ever to hit the heart of the Farm Belt during the critical growing months. It began in the Pacific Northwest during the winter of 1988, then spread into the Northern Plains by early spring and into the Lake States, Midwest and Southeast by early summer. Over 70 percent of all U.S. counties were eventually affected by the drought.

Total U.S. grain production was cut 29 percent from a year earlier. The corn crop was reduced a third, the spring wheat crop was down more than one-half, and the soybean crop by more than a fifth. On the other hand, winter wheat, rice, and cotton production were largely unaffected.

Corn production was hardest hit in the Midwest with yields suffering unprecedented losses. In Illinois, average yields per acre were down 60 bushels from a year earlier. In Indiana yields were 57 bushels lower and in Iowa 47 bushels lower. Spring wheat yields were greatly affected in the Northern Plains, averaging only 14 bushels in North Dakota and 12 bushels in both Montana and South Dakota.

Consequently, a massive drawdown of stocks is underway. Only two years ago, global stocks of grain were record high. In the United States alone, stocks of all grains--wheat, coarse grains and rice--totaled 204 million tons, enough to satisfy our domestic needs for almost a full year.

As you know, the policy response to this costly surplus was to remove cropland from production. In 1987, nearly 76 million acres of U.S. cropland were idled, and that combined with strong exports, resulted in a drawdown of stocks of 35 million metric tons. In 1988, 78 million acres were idled--an area almost equivalent to the total acreage of grain harvested in the EC. With normal weather, stocks would have declined somewhat, but with the drought, it is now estimated stocks will be drawn down a staggering 100 million tons by the end of this marketing year.

In other words, the U.S. grain stockpile will have been reduced 135 million tons in a two-year period. During this same two-year period, other countries' stocks will decline an estimated 53 million tons. So, the record global grain stockpile of two years ago has been dramatically cut.

The reduction in global grain stocks has prompted some people to predict an era of tight supplies. The specter of global food scarcity has reared its head once again. The name of Malthus has been invoked. Thomas Malthus, the 18th century philosopher, warned almost two hundred years ago that population growth would outpace the world's ability to feed itself.

Today's Malthusians say that we have reached a plateau in agricultural productivity--that the easy gains in crop yields have been won and that future productivity gains will be diminished. Furthermore, they say that environmental degradation will further constrain productivity and that the advances of biotechnology are years away.

History certainly does not support this pessimistic view. In fact, the tendency, in this Century at least, has been for agricultural productivity to outpace the growth in demand for farm products. There have been years in which the reverse was true, when demand has surged ahead of supply, such as in World Wars I and II, in the Korean War and again in the early 1970's. But in each case, farmers have responded with increased output and the long-term productivity trend has resumed.

Overall farm productivity has increased nearly 30 percent in the last decade alone. During the past 30 years, annual grain yields have increased steadily year after year. The average annual increase for corn has been two bushels per acre per year; for wheat, one-half of a bushel; and for soybeans, about one-third of a bushel. That amounts to yield increases of 60 bushels per acre for corn, 15 bushels for wheat and 10 bushels for soybeans since the 1950's.

If these yield increases continue in the future and no additional acres are returned to production, then by the year 2000, an additional market will be

needed for 1.4 billion bushels of corn, 320 million bushels of wheat and 200 million bushels of soybeans.

That's if no additional acres are brought into production. In fact, some of the idled U.S. cropland will return to production in 1989. An additional 25 million acres, or more, will likely be planted to grains and soybeans next year. Vast areas of land in other parts of the world, particularly in South America could be developed for agricultural use if warranted by long-term demand. In other countries in the less developed world and in Centrally Planned Economies improved technology and agricultural reforms could bring about production increases.

Many countries--including some major agricultural producers--have yet to adopt existing technology that is currently available. For instance, only one-third of the corn area in developing countries is planted to hybrid corn varieties. Yet these developing countries account for fully one-half of the world's corn area and if they were to adopt hybrids, productive potential would increase significantly.

There is little reason to believe that the pace of technological improvement in agriculture will slow in the years ahead. If anything, dramatic breakthroughs are on the horizon. Within the next few years, biotechnology will move from the laboratory into commercial use, potentially offering new plant varieties resistant to insects, heat, drought, frost, and disease.

But the immediate question is what will happen next year? I thought it would be useful to look at historical data to help answer this question. I asked USDA analysts, "what happened to production and stocks following previous droughts?" Here's what they found. They singled out years during the period from 1950 until 1987 when crop yields dropped more than 15 percent for whatever reason. In each case, the year following such a drop showed a production rebound, and in most cases, stocks started to reaccumulate. Corn production, for instance, rebounded on average 42 percent in the year following a reduced crop and corn stocks grew 56 percent. Soybean production rebounded 17 percent on average and stocks 30 percent. Wheat production rebounded 20 percent and stocks 31 percent.

Yield data for the past 20 years show that corn, soybean and wheat yields recovered to within 10 percent of trend--either higher or lower--in years immediately following a drought year.

The bottom line is that underlying fundamentals may have been masked, but they have not been changed by the 1988 drought. Let us not forget the conditions that existed two years ago. Subsidization of agriculture in the developed countries resulted in chronic overproduction of agricultural commodities and dumping of supplies on the world market. Europe lamented about "milk lakes" and "meat mountains." We all worried about a "world awash in grain." The drought has altered the immediate outlook, but in a world of subsidized

agriculture, the long-term tendency to overproduction lurks only slightly below the surface.

A February 1988 study by USDA's Economic Research Service points to chronic excess capacity in U.S. agriculture. The study, which covered the period 1940 to 1986, measured excess capacity for all crops and for major program crops--wheat, feedgrains and cotton. According to the study, excess capacity increased sharply in the 1980's to about 9 percent for all crops and to more than 20 percent for major program crops. This is far above the excess capacity of the late 1970's and even exceeds the 1960's when excess capacity was about 6 percent for all drops and 15 percent for major crops.

The fact is, agricultural productivity continues to outpace the growth in demand for agricultural products. The danger today is that policy makers will be misled by the present tightness in global grain supplies brought about by the drought. Analysts have always been swayed by conditions prevailing at the time they make their estimates, and they have frequently underestimated the capacity of farmers to expand production. But history has demonstrated time and time again, when prices give the signal to expand output farmers invariably respond.

On the other hand, there are several reasons why the rebuilding of stocks this time, especially wheat stocks, may be gradual rather than sudden. First, the Conservation Reserve Program already has removed 25 million acres from production and, when fully implemented, will prevent at least 40 million acres from being planted to crops. Second, the lower value of the dollar helps price U.S. agricultural products competitively in the world markets. This should help sustain U.S. exports while at the same time restraining foreign producers from rushing back into production. Third, growing world economies, particularly the Newly Industrialized Countries of the Pacific Rim represent expanding markets and increased world trade. And, finally, no one knows for sure what the weather will be in 1989. Analysts have to assume "normal" weather but the Palmer Index continues to be below normal and if pockets of drought persist into the next growing season, yields could be below trend.

Despite these caveats, I believe it would be a great mistake to ignore long-term fundamentals. Barring another drought, the odds are in favor of a rebound in production and a rebuilding of stocks. Even if this rebuilding is gradual, it underlines the importance of the reforms that have been proposed by the United States for agriculture in the Uruguay round of GATT negotiations. In the absence of such reform, it will be difficult to avoid a return to the costly and wasteful agricultural surpluses that have plagued us in the past.

ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

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Outlook '89, Session #31

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THE FUTURE SIGNIFICANCE OF THE 1988 DROUGHT IMPACT ON U.S. POLICIES AND PROGRAMS

J.B. Penn
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Introduction

The 1988 drought has served to again remind us of the vulnerability of U.S. agriculture. Although the farm sector is ultra-modern, very high-technology, and among the most advanced in the world, U.S. farming still is risky business and still vulnerable to natural forces that can produce very wide swings in output and income.

The drought also emphasized how very quickly the economic situation can shift. A combination of forces was beginning to improve the agricultural supply-use balance, but the drought greatly accelerated that movement. We have gone in a few months from a preoccupation with surpluses to other concerns.

A major and enduring characteristic of domestic agricultural policy is that it is largely driven by economic circumstances. The drought has changed greatly the market environment—now and perhaps for the next couple of years—and its most lasting effect on policy likely will be that change.

In my remarks, I will review briefly how the economic setting has changed, and speculate a bit on the implications of that for farm policy. I will also note briefly some other, perhaps less direct, effects the drought may portend for policy as well.

Perspective on the 1988 Drought

- o The most severe drought on record. The 5th major drought since 1970 (1970, 1974, 1980, 1983, 1988).
- o Total U.S. grain production reduced more than 30 percent.
 - Corn production was reduced over one-third.
 - Spring wheat reduced about one-half (winter wheat much less affected).
 - Soybean production reduced more than one-fifth.

- o With continued strong demand, total grain use for the year will far exceed production, resulting in a significant drawdown of inventories.

Ending Year Stocks

		<u>1987/88</u>	<u>1988/89</u>	<u>% Change</u>
Corn	(mil bu)	4,352	1,559	-64
Wheat	(mil bu)	1,236	536	-57
Rice	(mil cwt)	31.5	28.4	-10
Soybeans	(mil bu)	280	100	-64

USDA now projects that by the end of this crop year (beginning of next summer's harvest):

- Corn inventories will be almost two-thirds lower, the lowest since 1983/84.
- Wheat stocks will be almost 60 percent lower, the lowest level in 14 years.
- Soybean stocks will be down by almost two-thirds, to the lowest level in more than a decade.

Major Drought Impact is Change in Economic Setting

- o In just a very short period of time, we have gone from a preoccupation with "burdensome surpluses" to a concern, although still mild, about adequacy of supplies.
- o This is true not only for the United States, but also for the world grain situation.

Total Grain Stocks: U.S. and World

<u>Year</u>	<u>:</u>	<u>U.S.</u>	<u>:</u>	<u>World</u>	<u>:</u>	<u>World Stocks</u>
	<u>:</u>		<u>:</u>		<u>:</u>	<u>as Percent of</u>
	<u>:</u>		<u>:</u>		<u>:</u>	<u>Annual Use</u>
	<u>:</u>	<u>-- million tons --</u>				
1980/81	:	71.8	:	285.8	:	19.4
1981/82	:	111.2	:	306.8	:	20.8
1982/83	:	152.2	:	355.1	:	23.7
1983/84	:	79.4	:	302.7	:	19.7
1984/85	:	98.9	:	362.7	:	22.9
1985/86	:	181.2	:	429.9	:	27.0
1986/87	:	203.7	:	457.7	:	27.7
1987/88	:	173.5	:	396.3	:	23.8
1988/89	:	67.2	:	269.0	:	16.2

Source: World Grain Situation and Outlook, USDA, October 1988.

- o USDA projects that at the end of the 1988/89 season, world stocks of all grains will be no more than 269 million tons, a decline of 127 tons from the previous year. This amount represents only 16 percent of annual utilization (down from 24 percent the year before), the lowest level in 15 years and approaching the lowest level (15 percent) ever reached.
- o Other factors were at play in the recent rapid reduction beside the drought, including strong global demand and a worldwide decline in acreage. Had there been no drought in 1988, stocks still would have fallen, perhaps nearly 50 million tons.
- o Along with the significant drawdown in stocks, the changed economic setting also included:
 - Much stronger commodity prices.
 - Reduced cost of the farm commodity programs. The lower stock levels mean reduced cost of holding stocks and the higher market prices mean lower deficiency payments (reduced payment per unit). Although the drought assistance bill was passed, and will cost some \$4 billion, the net cost of the programs for the year still is less than expected before the drought.
 - Little impact on farm income for the sector as a whole, although there are widely different effects depending on the area of the country and the commodity.

An interesting aspect of this drought in contrast to the previous one is the effect on the demand side. It now appears that the effect of the 1988 drought on demand will not be as adverse as was the 1983 drought in combination with PIK. In 1983, the livestock sector was very severely affected as herd liquidations were deep and a long time was required for recovery of feed demand. It was not until three years later that feed demand returned to the pre-drought levels.

The less severe effect of the 1988 drought on demand arguably is because there was greater access to stocks held by the CCC and in the FOR. Because of the use of certificates, prices were not forced to rise to reserve release price levels before stocks were available to the market. Thus, with prices this year not responding as sharply, the adjustment and detrimental impacts on the livestock industry may not prove to be as great, and feed demand to be much less affected.

Another effect of the 1983 drought and PIK which we may not experience to the same extent from the 1988 drought is the acreage response of foreign producers. The high reserve release prices in 1983 allowed market prices to run up sharply, which encouraged foreign producers to expand their plantings. Since prices are not rising as high this time, the incentives to other producers is not as great, and the response likely could be less.

This changed economic setting could prevail for a couple of years. Most analysts expect grain utilization to remain strong over that period and, despite ARP reductions, stocks to grow only slowly and not to return to excessive or burdensome levels. This means that we are into 1990 or 1991 before stocks return to a more comfortable level. So, we are unlikely to be debating the next major changes in farm policy in an atmosphere of surpluses and excessive stocks.

Since a strong characteristic of farm policy is that it is influenced heavily by economic conditions prevailing at the time that major legislation is being formulated, the drought could well have influenced the policy alternatives to be considered and the relative emphasis on issues as well.

Other Possible Policy Impacts

The drought obviously has contributed to a greatly changed economic environment this year, and thus introduced considerable uncertainty not only to the economic situation but also to the policy outlook as well.

Some less tangible effects of the drought that are likely to be manifest over a longer time period are briefly noted below.

Reduced Pressure to Cut Farm Program Spending

The level of farm program spending reached its all time high in FY 1986, the first year of the 1985 Food Security Act. The costs declined somewhat in the subsequent year, and are expected to continue to decline over the remainder of the life of the 1985 law.

The impact of the drought, even with the drought assistance programs, has been to reduce those costs even more than was expected.

The sudden post-election jitters of the financial markets refocuses attention on the budget deficit and the need to pare spending. Because of its rapid growth in recent years, farm program spending is an obvious target of any cuts. But, the much lower spending following the drought could suggest that any cuts for agriculture will be less than they otherwise would have been. Since lower target prices is an obvious way to achieve significant savings, this further suggests that the pressure to reduce the target prices perhaps is lessened.

Reduced Interest in Decoupling

When stocks of some program commodities already are burdensome and the programs continue to provide incentives to produce even more of those very commodities, rather than commodities the market indicates are in relatively short supply, then there is considerable interest in decoupling--severing the link between program benefits and farmers' production decisions.

The reduction in stocks, however, reduces the urgency to reform the existing programs and the interest in decoupling, which still is viewed as a rather

major shift in policy direction, even though the gradual adjustments in current policy (0-92, frozen program yields, etc.) are aimed in that direction.

Increased Interest in Sustainable Agriculture

Environmental issues related to agriculture, especially groundwater contamination, appear to be building as an important part of the next farm bill debate. Sustainable or low input agriculture already was enjoying some increased attention, as somewhat of a possible piggyback issue to the environmental issue. But, some people argue the drought highlighted the fragility of the current farming systems, characterized by monoculture, high-tech practices, and intensive chemical and fertilizer use, and that a more diverse, lower input crop rotation system could reduce farmers' vulnerability to wide production and income swings caused by natural forces such as drought.

This could highlight discussion of sustainable agriculture in a policy context. As the current program structure is reexamined to allow greater producer flexibility in choice of crops, provisions that encourage or at least do not impede use of sustainable agriculture practices could be advocated and considered. Proponents could well argue that in addition to having a more positive environmental effect, such practices also could work to reduce the vulnerability to natural calamities.

Reduced Pressure on EEC

The relatively low commodity prices of recent years and the growing use of EEP had significantly increased the budgetary pressures on the EEC, as the maintenance of its programs were costing more and more. Such costs were building some pressures for changes internally and for likely concessions at GATT. But, the strengthened prices from the drought reduces the costs of the programs and the pressures to make concessions in the ongoing GATT negotiations.

Renewed Popularity of Grain Reserves

Another effect of the drought, through the changed economic environment, could be to give the Congress and the industry a chance to focus, if they wish to, on some issues related to the reduced stock levels. The experience of this year has led to a greater appreciation of the FOR even by some formerly strong critics. The Congress thus has an opportunity to examine such questions as:

- o Should we have a farmer-owned reserve?
- o How should it be structured and operated?
- o What is its appropriate size?
- o How is it operated in conjunction with CCC stockholdings and resale policy?

A key question concerns the access to the stocks and the role of government. With very high release prices, prices have to rise sharply for the stocks to become available to the market, or the use of certificates is required. The use of certificates keeps the government heavily involved in the commodity markets, and frequently in an arbitrary manner. This role of government has come to be criticized from virtually every corner, and the Congress could take the opportunity to look for ways that would obviate such involvement.

The greatly reduced stocks and reduced ARPs also provide a climate in which the Congress could review other thorny issues, such as increased flexibility in the programs to allow farmers to be more responsive to the markets, overcoming the problem now typified by the soybean-oats situation.

Pressure for Reform of Crop Insurance

The 1988 drought served to highlight the inadequacies of the crop insurance program. Once again the Congress, with passage of the drought assistance legislation, reinforced the perception that the government will bail out people who did not buy crop insurance. The crop insurance program has been on difficult track for some time, and this experience could well add to those difficulties. It could lead some people to suggest that if we are going to have crop insurance, then we may have to fundamentally rethink the type of programs we have.

Renewed Attention to Income Insurance Schemes

In a somewhat related vein, the drought also could be expected to produce a resurgence of interest in farm income insurance schemes as an alternative to current policy. More careful examinations could well be given to income insurance, such as the Western grains stabilization scheme in Canada, as a means of stabilizing year-to-year cash flow rather than the government absorbing so much of the downside risk as done currently. This involves a greater contribution by the farmer, paying in the good years, to be able to withdraw in poor years.

Increased Difficulty of Meeting CRP Targets

After three years of enrollments, the USDA still has some 12 to 15 million acres to enroll in the Conservation Reserve Program (CRP) to meet the goal of 40 to 45 million acres mandated in the 1985 FSA. As the drought has strengthened prices, and the outlook now is much brighter for the next couple of years, it seems likely that the USDA will encounter greater difficulty in obtaining the remaining required acres. Farmers can be expected to be more reluctant to enroll eligible acreage with the improved profitability from stronger prices. Even if the target acreage is enrolled, it likely will prove costlier on average than the cost of the acreage already enrolled.

Produced First Use of a Gross Income Cap

Another result that could be attributed to the drought, and which could prove to have future policy significance, is the inclusion of a test for benefit

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eligibility based on gross income in the drought assistance bill. Arguably the first use of a means test in farm commodity programs, farms with more than \$2 million of gross sales are ineligible for assistance under the programs of that law.

Some observers suggest this could be an important precedent, a provision likely to become much more familiar in future farm policy proposals, especially if targeting receives more attention in the next farm bill debates.

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With these suggested policy impacts of the 1988 drought, I will end my remarks. Thank you for your attention.

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THE FUTURE SIGNIFICANCE OF THE NORTH AMERICAN DROUGHT

Mr Bernard Wonder
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& Resource Economics

Thank you Mr Chairman,

Of the three papers presented, my comments will deal mainly with the issues raised by Drs Wilson and Penn. I do not have anything to add to the points made by Dr Rodenhuis though I will be most interested to hear during the discussion period any views he may have on the implications of long term climatic change for suppliers of agricultural products outside North America. However, I should add, that from an Australian perspective, droughts and climatic events in general have assumed less importance than world agricultural policies in recent years. This largely reflects Australia's familiarity with and the expectation of droughts of varying intensity and our interest, as an exporter, in there being a trading environment that is not subject to the same uncertainty that characterises our physical environment.

My comments deal principally with the significance of the North American drought for cereal markets. I intend to look first and in brief at what wheat and coarse grains prices are expected by our Bureau over the next year and the medium term. I would then like to look more closely at the factors behind this outlook, particularly the interactions between forecast prices, supply response in the US and competing export nations, and the policy environment. The key point I wish to develop is that the North American drought may well be of limited long term significance when considered in conjunction with the policy environment within which producers in the US and elsewhere must operate.

In 1988-89, prices for wheat have been significantly higher than in 1987-88. The two major factors responsible are the drought reduced US and Canadian production and the continued reduction of US wheat stocks through the Export Enhancement Program.

With world use of wheat remaining high, the International Wheat Council expects world wheat stocks to be drawn down to a level that has not been seen since the mid 1970s.

Given average seasonal conditions wheat production should rise in 1989-90. The lower acreage reduction requirement for participants in the US wheat program will almost guarantee a fairly large increase in US wheat production in this year. At the same time Canadian production should return to its pre-drought level. Elsewhere, however, including in Australia, there is unlikely to be a significant supply response in 1989-90. In aggregate, the supply-demand balance in 1989-90 is likely to remain fairly tight, resulting in higher world prices and a continuing tight stock situation.

The outlook for coarse grains differs slightly from that for wheat in that coarse grains stocks have not been depleted to the same extent as for wheat. Also, coarse grains production, being more concentrated in the US, is likely to rebound more strongly. In fact, in contrast to wheat, closing stocks of coarse grains may even increase in 1989-90. While wheat prices are likely to rise in 1989-90, particularly in the latter half of calendar year 1989, those for feed grains are expected to decline for the marketing year overall.

Beyond 1989-90 world wheat consumption is expected to increase above the levels recorded in the previous five years. This is due largely to economic growth in the major consuming countries. Such improvements in demand will be critical to maintenance of higher wheat prices though, even then, this positive influence could be offset by increased production as a result of policies adopted in the major exporting and consuming nations and of production responses to the present increased prices.

The medium term outlook for coarse grains is less optimistic than for wheat. While utilisation of coarse grains may increase moderately, there is likely to be a significant increase in world production. Moreover, world trade is not expected to grow much in the medium term. The net result is that prices could ease in 1989-90 and decline further thereafter.

Having briefly covered the major features of the outlook for world cereal markets, I would now like to look more closely at the effects of the North American drought on the factors affecting this outlook. In particular, the stockholdings and supply responses of major cereal producers and exporters and the impact of policies in these countries are of interest.

Dr Wilson has already noted the historically low level of world grain stocks. The current stockholding situation in the United States is of particular interest as it has held in recent years around one quarter of the world's wheat, and over 40 per cent of coarse grains stocks. Even these figures tend to understate the importance of the United States, since most of the remaining stocks are working stocks held by the grain importing or other exporting countries.

The reductions in US stock levels that have accompanied the drought have resulted in a fall in the US acreage reduction program percentages from 27.5 per cent to 10 per cent for wheat and from 20 per cent to 10 per cent for corn. However, it is important to note that the reduction for wheat was announced in May 1988 before the adverse implications of the drought for US spring wheat and feed grains became strongly evident in June. It seems reasonable to suggest that reductions in the area reduction program were initiated by the rundown in US stocks which occurred primarily as a result of the Export Enhancement Program. In fact, in 1987-88, about 25.5 million tonnes of the total of 43 million tonnes of US wheat exports were with EEP assistance.

The manipulation of US stocks has influenced market prices and provided a vehicle for achievement of income support and US producer price stabilisation objectives. What is particularly interesting, however, is the interaction of US stockholding behaviour and the drought.

As you are all aware the normal commercial role of stockholding activity is to provide additional demand when prices are low and to supplement supplies when prices are high. Such activity tends to impart some measure of stability to grain market prices by evening-out the peaks and troughs of current production. In fact, this aspect of stock management is reflected in US farm legislation which stipulates that market prices must reach certain levels before public stocks can be sold and before growers are encouraged to release grain from the farmer owned reserve.

Given these principles it could be argued that it is quite appropriate for the US to release stocks in response to the more buoyant conditions on world grain markets that accompanied the 1988 North American drought. The problem, however, is that the United States had already released large amounts of stocks to the market when both demand and prices were low. This is contrary to the notion of only releasing stocks once trigger prices have been reached. In fact, our understanding is that US farm prices for wheat have yet to reach the point at which release of government owned or government controlled stocks is actually triggered through market price related mechanisms. Indeed, it is arguable that, to the extent that the current world stock situation can be seen as reaching crisis dimensions, past stock release policies under the EEP for wheat and under the generic certificate arrangements for feed grains are as much responsible as the drought is.

In addition to the interaction of US stock management and the drought, the other main area I would like to comment on is the significance of the drought for supply response in the major exporting countries.

Prior to the drought in North America there had been a significant fall in grain prices associated, to a significant extent, with the large releases of US grain stocks under the EEP and certificate arrangements. Low prices encouraged producers in some countries, where alternatives were available, to move substantially out of grain production. They also encouraged some governments to increase protection significantly, by maintaining domestic prices as world prices fell or by increasing direct income support. It is useful to look more closely at the incentives facing producers in the major exporting nations to gain a better understanding of likely supply response to the current higher prices.

For the US it appears that two scenarios are of interest. The first is that higher market prices will not directly affect US farmers wheat and coarse grains planting intentions in 1989-90 since these decisions are based on assessments of program options rather than direct market signals. That is, the supply response in the US could be driven more by administrative decisions of the US government in the form of the determined target prices, deficiency payments and acreage reduction requirements rather than price signals from the North American drought affected world market.

The second scenario is that cereal prices, particularly wheat, improve to the extent that world prices approach or exceed target prices. This scenario is particularly relevant to the wheat outlook in the event that import demand from China and the growing economies of East and South-East Asia is strong and at the same time there is no major reduction in wheat imports in the Middle East, Latin America, Africa and the USSR.

If this second scenario were to emerge then program participation could be expected to be reduced substantially with very little land subject to the acreage reduction requirements. However, the lower acreage reduction requirements for the 1989-90 program may mean that there is little practical difference between these two scenarios so far as the maximum possible level of grain production is concerned. Nevertheless, the possibility of a market breakout, (that is world prices approaching or exceeding target prices), is of interest as it would imply a lower level of government owned or controlled stocks. This in turn may mean less disruption to the world market in immediately subsequent years through the EEP as government programs become less relevant. Perhaps more importantly, the drought could potentially serve as the catalyst which provides for the establishment of an environment where producers in the US and elsewhere are required to take decisions on the basis of underlying market fundamentals rather than price and other signals provided in this instance, by the US government.

A final comment in relation to the US is that the actual level of supply response that emerges in 1989-90 and subsequent years is a little problematic given that the production capacity of capital held on farms may have been eroded by low levels of investment throughout the 1980s. I am sure others can speak more authoritatively in this area though it is relevant to raise the subject given its potential significance for world cereal production and the fact that it has not been raised by other speakers.

In contrast to the US it is possible that supply response to the 1988 price rise will be relatively muted in other cereal exporting nations. Producers in the European Community, and to a lesser extent Canada, were sheltered from the low market prices from 1985-86 for 1987-88 by the provision of government support. The insulation of EC and Canadian producers from the drop in world market prices will mean that much of the subsequent increase in prices in 1988-89 will not be reflected in increased unit returns to producers in those countries.

The significance of this point is apparent from examination of the increased support given to EC and Canadian producers in recent years. For example, the approximate maintenance of EC internal market prices in 1986-87 at a time when US selling prices and world prices declined sharply with the lowering of the loan rate and when some US sales were being made with EEP assistance, resulted in a sharp increase in export subsidies and assistance levels generally in the European Community. That increase was exacerbated further by the depreciation of the US dollar relative to major EC currencies at that time. It is estimated that in 1986-87, producers in France were receiving market prices for wheat that were about \$3.45 per bushel above prices obtainable from the world market - at a time when the US market price at the farm gate was \$2.42 per bushel.

Support for Canadian producers also rose sharply in 1986-87 with wheat growers receiving approximately \$US1.60 per bushel through a range of assistance measures which included items such as large government payouts under the Western Grain Stabilisation Act and the special grains program.

Much of Australia's output of wheat and coarse grains is produced on multi-enterprise farms involved in wool and beef production. As prices received by producers for all of these products are essentially those determined in the international market place, producers are highly responsive to new developments.

The area sown to grains in Australia has declined in recent years as a result of depressed cereal prices, strong wool prices and an improved outlook for meat products. The higher cereal prices recorded in 1988-89 is expected to halt the decline in cereal production though it is unlikely that there will be any large increases in area sown to crops in the next couple of years due to the buoyant

outlook for wool and beef. Australian production of wheat and coarse grains over the next few years should average 13.5 million tonnes and 7.4 million tonnes respectively given normal seasonal conditions. Such levels are somewhat lower than averages over recent years.

Finally, in Argentina, there is likely to be a positive area response to the increased world prices, although the relative size of Argentina's production and exports will prevent this from having more than a minor impact on market supplies.

In conclusion, Mr Chairman, there are five points I have made in regard to the issues raised by the speakers.

First, the higher wheat prices currently prevailing on the world market can be expected to last until 1990 but a continuation of past policies in major exporting and consuming nations would cast considerable doubt on their sustainability in future years in the absence of a major increase in import demand.

Second, prices for coarse grains, while improving in 1988-89 may fall in the following year.

Third, the measures which the US takes to manage its own domestic grain situation impact on world grain markets and may have contributed to the current tight stock situation.

Fourth, government programs rather than drought induced supply shocks will be instrumental in the long term trading environment for grains. A possible exception to this conclusion is a small probability of a market breakout, particularly for wheat, whereby underlying market conditions provide an opportunity for agriculture to be more market oriented and government policies and programs to be of less importance.

Finally, the prospects for increased grain production in the next couple of years appear to lie largely with US producers who have historically been quick to respond to reductions in area reduction programs. Grain production in most other exporting countries is unlikely to increase significantly due to past protection of producers or relatively buoyant market conditions for competing enterprises.

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FARM FINANCE OUTLOOK

Gregory Hanson, Andy Bernat, Kenneth Erickson and James Ryan
Agricultural Economists, ERS

The farm finance outlook for 1989 is favorable. This is due, in large part, to the continued strength of crop and livestock commodity sales. Record-tying commodity sales of \$148-\$152 billion are forecast for next year.

The favorable outlook also reflects continued strengthening of economic fundamentals that undergird longrun trends in agriculture. Land markets have strengthened and the farm balance sheet has stabilized. The problem of excess commodity stockpiles has been alleviated by the drought. Instead of the cost/price squeeze of the early and mid-1980's, input costs and commodity prices will be in better balance in 1989.

Three negative factors cloud the outlook. First, the farm sector will continue to rely heavily on Government payments in 1989. This signals that U.S. agriculture has not fully regained its competitive edge. Second, the USDA estimates that about 15,000 commercial farms will be financially on the ropes due to losses from the drought. Third, growth in production may surpass demand. While a large buildup of stocks is unlikely during 1989, we know from experience that problems of excess supply can rapidly reoccur.

Commodity Prices and Receipts

Commodity prices will continue to provide strength to the Farm Sector in 1989. The index of prices received for all farm products is projected stable, as a 2 percent increase in livestock prices offsets a slight fall in crop prices. Broad-based indexes of crop and livestock prices will be from 20 to 30 percent higher in 1989 than their low points in 1986. Thus, 1989 will continue the recent pattern of more balanced price strength between crop and livestock commodities.

- o Led by record-high beef prices and a rebound for hogs from fourth quarter (1988) low's, livestock prices will rise for the fourth consecutive year.
- o Tight wheat stocks, not likely to be replenished in 1989, will maintain wheat prices near current levels. Cotton performance may be the most adversely affected by excess supplies in 1989.

- o In addition to wheat, relatively stable prices are projected for tobacco, fruits, vegetables and dairy products.

The combination of generally firm prices for most commodities and higher production will maintain commodity receipts at their 1988 level or may increase them by \$1- \$2 billion in 1989. While production gains could raise wheat and corn receipts by as much as \$3 billion, soybean and cotton receipts may decline by \$2 billion.

- o In spite of a 5-8 percent gain in fed cattle prices, declining slaughter will hold cattle receipts stable. This could signal the beginning of the long-awaited expansion in the beef sector.
- o Poultry and egg receipts are likely to total more than \$13 billion for the first time ever.

The pronounced financial difficulties of crop producers during the mid-1980's has obscured a remarkable rebound in the livestock sector. Livestock receipts in 1989 are forecast to be \$10 billion higher than in 1985. But there is one key difference between the current outlook and livestock performance 12-18 months ago. Rising crop prices translate into higher feed costs that dampen livestock net earnings. Lower hog/corn and steer/corn ratios provide further evidence of a more traditional balance between crop and livestock prices and receipts in 1989.

Farmers to depend less on Government payments

Government direct payments to farmers are forecast at \$9 to \$11 billion. In real terms (\$1982), 1989 direct payments will be 25 percent lower than in 1988. Total Government outlays, including net Commodity Credit Corporation (CCC) loans, will have fallen 50 percent between 1987 and 1989, providing only 7 percent of gross cash farm income in 1989. This level conforms more to the 1960-84 average of about 6 percent, rather than to the 1985-86 average of 13 percent.

- o More than 20 percent of direct Government payments in 1989 will be for the Conservation Reserve Program.
- o Reflecting lower CCC stocks, use of Payment-In-Kind (PIK) marketing certificates will be at greatly reduced levels next year, while cash deficiency payments approximately equal the 1988 level.
- o CCC placements may slightly exceed redemptions whereas in 1988 there was about \$3 billion of net redemptions, particularly redemptions of food grain and feed grain loans.

Government programs continue to play a major role in price stabilization, supply control and support of farm incomes. But when compared to the previous four years, the Government role in agriculture will be diminished in 1989. This is partially the result of changes in farm legislation and the continuing focus upon export markets. The trend to lower Government outlays will be accelerated by the supply-tightening impact of the drought.

It is still premature to view the 1988-89 trend to lower commodity program payments as representative of "permanent" gains in farm income and financial health. However, livestock receipts and earnings have surged, in conjunction with legislated reductions in CCC loan rates for feed grains. Also, the downward shift in mid-1980's cost-structure (e.g. lower debt levels and land prices), and the rapid 1987-88 growth of exports suggest that agriculture can now better compete in world markets and rely less on Government price support programs than was the case in the mid-1980's.

Moderate Rise in Farm Expenses

Farm expenses are projected to grow four to six percent in 1989. The total cost of fertilizer, chemical, and seed may grow by 10 percent or more. However, level feed costs that offset increases for manufactured inputs, are the key to this forecast of moderate overall growth in farm expenses.

- o Both seed and fertilizer costs may rise 16-20 percent, reflecting increased planted acreage in 1989, and 5-10 percent increases in fertilizer and seed prices.
- o Fuels and pesticide expenses are projected to increase from 10 to 15 percent, primarily due to larger feed grain and food grain planted acreages. Fuel prices may be nearly flat while agricultural chemical prices may rise 5 to 10 percent.
- o Interest expenses will increase in 1989 for the second consecutive year, but the increase will be less than five percent, reflecting nearly stable interest rates and a slight increase in farm debt.

The impact of both the drought and increased planted acreages will be evident in virtually all categories of 1989 farm expenses. Marketing, storage and transportation costs could rise 20 to 30 percent as production rebounds. The improved financial health of farmers with large inventories of crops at the beginning of 1988, and of those whose production was not badly damaged by drought, could generate substantial purchases of farm machinery in 1989. Higher machinery purchases in both 1988 and 1989 will generate a slight increase in depreciation expense, reversing a downward trend that has existed since 1982.

Farm Income

Lagged impacts of the drought will cause accrual and cash income to move in opposite directions in 1989. Net farm income (an accrual-based measure) will rebound more than 20 percent as crop yields recover. In contrast, net cash income will decline 10-15 percent as farmers cut-back commodity sales to replenish drought-depleted inventories. After adjustment for inflation, net farm income will still be the second-highest since 1975. Inflation-adjusted cash income will exceed the level of 1981-84.

- o The forecast for net cash income is \$48-\$52 billion. This indicates that farm businesses will continue to generate substantial cashflows in 1989.

- o The forecast for net farm income (accrual-based) is \$44-\$48 billion. This level of income assumes a return to trend or near-trend yields, and additional production from 25-30 million more planted acres.

The most critical period for many drought-stressed farmers will be next spring. They will have less corn, soybeans and spring wheat to sell from storage, and will face the prospect of larger planting expenses due to higher costs of seed and fertilizer and to an increase in planted acreages (less idled acreage due to Government commodity programs).

- o In spite of Federal drought assistance, a lagged effect of the drought will be to create cash-flow and loan repayment problems for many crop-producers in 1989.
- o In terms of the 1989 cashflow generated by production, farmers will be less well-off than in 1988. In terms of the wealth generated by production (income plus inventory growth), farmers will be better-off than in 1988.

Financial Stress To Lessen In East, South and West

The total number of financially vulnerable commercial farms, with sales of \$40,000 or more is projected to decrease slightly in 1989. Reasons for this are: (1) soybean prices rose about 50 percent in 1988, more than offsetting 20-25 percent lower soybean yields through much of the corn belt, (2) real estate values remained generally stable to higher in the severe drought regions, providing a collateral cushion for many drought-stricken farmers, (3) for every drought-stressed farmer, several livestock, poultry, cash grain, vegetable, fruits, peanut, cotton, etc., producers were able to stabilize their financial position in 1988.

This is not to under-estimate the severity of the 1988 drought. Our estimate is that about 15,000 commercial farms have become financially vulnerable solely due to the impact of drought. In fact, about 20 percent of highly-specialized corn/soybean producers in drought counties are probably experiencing financial stress.

But the drought is viewed as a temporary natural phenomenon. Land prices react more to longer-run adverse phenomena. Thus financial stress increased rapidly during the cost-price squeeze of the early and mid-1980's that was accompanied by plummeting land prices. While a multi-year adjustment was required to develop a better balance between costs and returns in the mid-1980's, a return to average yield levels in 1989 will help resolve the majority of the drought-related problems in the farm sector.

Financial stress in both 1988 and 1989 will moderate because of two additional factors: a better balance between crop and livestock returns, and continuing substantial levels of Government payments to farmers.

- o No large concentration of stress, such as occurred among cash grain producers in the mid-1980's is in store for any

major enterprise group in 1989. Beef, hogs, poultry, corn, wheat, fruits and vegetables are projected to achieve stable or improved receipts in 1989.

- o Approximately 50 million Conservation Reserve Program and Government commodity program acres will be idled, providing a supply-stabilizing influence as well.

The Upper Midwest, stretching from Ohio to the Dakotas, may experience heightened stress through the summer of 1989. But this will likely be offset by further reductions in financial vulnerability in the West (where 80 percent of the commercial farms irrigate) South and Northeast regions.

Farm Financial Position Stabilizing

The financial position of farmers will continue to be stable in 1989 (in real terms). That is, the increase in farm net worth will about match the increase in inflation in the U.S. economy. When viewed in current dollars, asset growth will be broad-based:

- o Slight increases, averaging less than 5 percent will likely occur for livestock, machinery and financial assets.
- o Land prices could increase 2-4 percent, following a 6 percent gain this year. The slightly lower rate of increase for next year reflects some weakening of commodity prices during the next 12 months.

Farm Debt Stabilizes

Farm debt will likely increase slightly in 1989, reversing a five year trend of annual debt reduction. During the year, total debt outstanding is anticipated to increase by about \$2-\$5 billion. The retirement of farm business debt has continued through 1988, as a slight increase in nonreal estate debt was more than offset by declining real estate debt levels. Producers in less severe drought areas benefited from higher prices and near normal production levels. Apparently, these higher than anticipated cash incomes were applied to further debt retirement.

Farm Credit System loans (principally Federal Land Banks and Production Credit Associations) should increase in 1989, as the System continues to rebound from the financial difficulties of the mid-1980's. This will mark the first FCS annual increase since 1982.

Bank farm debt is expected to increase \$1-3 billion in 1989; many rural banks report that funds available for farm loans may exceed local farmer demand. Debt held by the Farmers Home Administration should decrease by at least \$2 billion in 1989, as the agency begins to implement legislation (Farm Credit Act of 1987--PL 100-233) to restructure delinquent loans. FmHA debt reduction could be substantially higher, if large amounts of problem loans are restructured and/or written off.

- o By the end of 1989, banks should hold approximately one-third of all farm debt, and the Farm Credit System should hold about 25 percent.
- o As of September 30, 1988, over \$8 billion was more than 1 year delinquent on FmHA farms loans; \$6.6 billion of this was delinquent more than 4 years.

Lending to finance farm real estate transactions should increase slightly in 1989, as stable or improving land values stimulate renewed interest by financially sound farmers to seek to expand their operations.

- o While many sales will be for cash, lenders will increase market share by offering financing in a more favorable resale market for their remaining foreclosure properties.
- o The secondary mortgage market for farm real estate loans should increase available farm real estate credit, as lenders write a portion of their loans to meet anticipated guidelines for sale to Farmer Mac.

Demand for nonreal estate loans should grow as increases in planted acreages push up expenditures for most inputs. Nonreal estate debt outstanding should increase by \$2-\$3 billion in 1989.

Farm Sector Returns and Cash Flow

The rates of return on farm assets and on farm equity are expected to remain near 1988 levels. The total real rate of return on farm assets, which includes both returns from current income and from real capital gains, is expected to be 5.0 percent in 1988 and between 3 and 5 percent in 1989.

Cash flow after interest (\$1982) in 1988 was \$41 billion and is forecast to fall to about \$36-\$38 billion in 1989. This remains markedly higher than the 1984-86 average of \$28 billion. Growth in real cash flow since the mid-1980's reflects decreased capital expenditures, lower interest expenses and decreased net loan repayments.

(1) Record-Tying Livestock Receipts Forecast

	1986	1987	1988*	1989*
Billion dollars				
Total	72	76	80	79-81
Cattle/calves	28.9	33.8	37	37
Hogs	9.7	10.3	9	10
Poultry/eggs	12.7	11.5	13	14
Dairy	17.8	17.8	17	18

(2) Crop Receipts Rebound

	1986	1987	1988	1989*
Billion dollars				
Total	64	62	69	69-72
Wheat	4.9	4.9	6	7
Corn	12.5	8.8	9	10
Soybeans	9.2	9.6	13	12
Fruits/Vegetables	22.2	23.5	24	25

(3) Moderate Growth in Expenses

	1986	1987	1988*	1989*
Percent change from a year earlier				
Farm origin items	-5	8	21	1
Manufactured inputs	-19	-1	4	13
Interest charges	-9	-8	2	2
Repairs, labor, other	-7	2	0	8
Total expenses	-9	1	8	5

(4) Income Outlook: More Production, Less Cash (as inventory replenished)

	1987	1988*	1989*
Billion dollars			
Receipts	138	149	148-152
Direct payments	17	14	10-12
Cash expenses	103	111	115-118
Inventory change	-1	-9	8-10
Net farm income	46	39	44-48
Net cash income	57	57	48-52

(5) 1988 Drought Worst in 50 Years

	Northern Wheat Belt 1/	Corn Belt 2/
Percent in drought counties		
Farms	82	79
Wheat	94	65
Corn and soybeans	59	73
Dairy	82	88
Irrigated farms	11	2

1/ MT, ND, SD, WY

2/ IN, IA, MI, MN, OH, WI, IL

(6) Financial Gains for Commercial Farms

	1985	1986	1987
Percent			
Returns on assets	N/A	4.8	6.5
Positive cash income	65	67	72
Financially vulnerable	17	16	11

(7) Balance Sheet of the Farming Sector 1/

Year	Current dollars			Deflated dollars (\$1982) 2/		
	Assets	Liabilities	Equity	Assets	Liabilities	Equity
	Billion dollars					
1980-84	950	184	765	976	188	788
1985-86	720	165	555	641	147	494
1987	709	143	566	602	121	481
1988*	741	139	602	609	114	495
1989*	755-765	139-147	612-622	595-605	110-115	485-490

1/ Excludes operator households and CCC commodity loans. 2/ Deflated by the GNP implicit price deflator, 1982 = 100.

(8) Rates of Return to Assets and Equity

Year	Returns to assets			Returns to equity		
	Income	Real capital gains	Total	Income	Real capital gains	Total
		Percent			Percent	
1980-84	2.0	-6.4	-4.4	0.0	-6.6	-6.6
1985-86	4.4	-10.6	-6.2	2.8	-12.9	-10.1
1987	5.6	-0.3	5.2	4.4	0.8	5.2
1988*	4.4	0.5	5.0	2.9	1.7	4.6
1989*	5-6	(-1)-(-2)	3-5	4-5	(-1)-0	3-5

Excludes operator households. Totals may not add due to rounding. Returns to assets and returns to equity are calculated using the average of the current and previous year's assets and equity, respectively.

*Forecast

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OUTLOOK FOR FARM INPUTS

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Agricultural inputs are fundamental in providing the variety of food and fiber products demanded domestically and overseas. At the same time, agricultural inputs are major determinants of farm output levels and farm income; are sources of new and improved technology in agriculture; transmit macro-economic effects such as interest rates and inflation to the farm sector; have a positive net impact on trade; provide significant amounts of income and employment; and have major implications for the environment, farm worker safety and food safety.

Farmers are expected to spend between \$115 and \$117 billion in 1989 for agricultural inputs, representing an estimated 4 to 5 percent increase over 1988. Anticipated growth in planted acreage in 1989 will likely result in greater input quantity consumed and higher input prices paid by farmers.

Agricultural inputs is a sweeping topic encompassing land, seeds, fertilizers, pesticides, farm machinery, repairs, feeds, labor, credit, livestock, animal health products, energy, water, farm structures, trucks, and a host of other goods and services purchased by farmers. This presentation will focus on the situation and outlook for labor, seeds, agricultural credit, the major manufactured agriculture inputs and land. Information on feed and livestock inputs is being presented in other Outlook sessions. In closing I'll briefly review several of the trends and issues affecting agriculture inputs in the near term.

Input Use Indicators

There are a number of ways to characterize input use levels and trends in agriculture such as physical units (e.g., pounds), expenditures (input price times input quantity purchased) which is useful for combining diverse entities into a common measure (i.e., dollars), and input productivity (i.e., input use per unit of output). Another related measure is cost of inputs required to produce a dollars worth of output. In essence, we combine the prices and quantities of inputs and outputs into one measure which indicates how costs have changed relative to the value of output.

In the early to mid-1980's it took about 80 cents worth of purchased inputs (cash expenses) to produce a dollar's worth of agricultural output (farm receipts) (fig. 1). Since 1984, that figure has dropped closer to 70 cents per dollar of output. (Other ratios which include Government program payments in the denominator or capital consumption in the numerator show a similar decline since 1984.) While a number of factors are involved in this decline, interest charges and expenditures for manufactured inputs are very important having declined over 20 percent during this period while the value of output declined only 3 percent. Declining interest rates and falling debt accounted for the fall in interest charges, while falling or constant input prices and a 10 percent decline in planted acres affected manufactured inputs. The latter point is illustrated by the declining ratio of manufactured input expenditures (plus seed) to crop receipts from 1984 to 1988 (fig. 1). Additional efficiency gains may have occurred due to some operators leaving the sector and the retirement of the least productive acres through the farm programs since 1984. Anticipated increased expenditures in 1989 for manufactured inputs, seeds, custom work and only a modest increase in farm receipts may lead to a reversal of the downward trend of this ratio.

Acres Planted

Nondurable agricultural input use, including production credit, is highly dependent on the mix and level of crop acres planted. Per acre seeding rates, application rates for fertilizer and pesticides, and tillage practices tend to change slowly from year-to-year leaving acres planted the major determinant of consumption. Small changes in commodity and input prices appear to have only a limited influence on aggregate input consumption. However, some evidence suggests that large changes in input prices, such as the energy price shocks of the 1970's and interest rate jumps of the 1980's, affected input use.

Planted acreage of the principal crops grew steadily during the 1970's, peaked in 1981, fell dramatically in the PIK-year of 1983, bounced back in 1984 and has been declining since then (fig. 2).^{1/} Due to heavy participation in the commodity programs and the Conservation Reserve Program (CRP), planted acreage in 1987 and 1988 was the lowest in nearly 16 years (excluding 1983).

The 1989 acreage reduction programs (ARP) for wheat and feed grains have been reduced, paid land diversions eliminated, and with higher, drought-induced commodity prices, participation in the farm programs may fall off, resulting in an increase in planted acres. The bounce back in planted acres from the drought (and PIK) year of 1983 was nearly 35 million acres. A similar acreage increase in 1989 would result in plantings of 345 million acres of the principal crops. However, CRP acreage, which cannot come back into production for 10 years, has grown to nearly 25 million acres since 1987. The commodity inventory draining effects of the 1988 drought will likely encourage a rebound in planted acreage for 1989 in the range of only 25-30 million acres.

Seed Consumption

^{1/} Principal crop area includes planted acres for corn, sorghum, oats, barley, durum and other spring wheat, rice, soybeans, flaxseed, peanuts, sunflowers, cotton, dry edible beans, potatoes, sweet potatoes, and sugarbeets, and harvested acreage for winter wheat, rye, all hay, tobacco and sugarcane

In 1988, seed consumption of the eight major field crops was close to 5.9 million tons, down 18 percent from the record acreage year of 1981 when 7.2 million tons were planted (fig. 3). Seeding rates in 1988 for the major crops were similar to 1987, but seed costs per acre were above year earlier levels (table 7). For 1989, seed use will likely rise between 10 to 15 percent over 1988 due to increased planted acreage.

The 1988 drought has had some serious implications for the 1989 supply of seed. One seed industry survey has reported that domestic seed corn production may be 45 percent below expected levels. Off-season production in the Southern U.S. and in South America will supplement the drought reduced production. However, some varieties may not be widely available, requiring farmers to take their second or third choice.

The combination of greater planted acreage, reduced seed supply, and more expensive off-season production may lead to some significant seed price increases next spring. Soybean and hybrid corn seed prices rose about 30 percent and 8 percent, respectively in 1984 after the drought struck the 1983 crop. In the case of hybrid corn seed, prices have been constant or declining slightly since 1985 which would make a price increase in 1989 the first in 4 years. USDA's prices paid index for seeds has been very stable since 1984, but is likely to increase 5 to 10 percent in 1989 (fig. 4).

Fertilizer Consumption

The drought appears to have had little effect on fertilizer consumption in 1988. Most fertilizer material is applied between March and June, which was prior to the first signs of a serious drought. However, some side-dressing was postponed, and continued dry conditions in localized areas of the winter wheat belt may have cut some applications this fall.

Our 1988 application rate survey indicates increased fertilizer use on corn, soybeans, and wheat, while per-acre rates declined on cotton. In the case of corn, the major consumer of fertilizer nutrients, application rates for nitrogen and phosphate rose by 4 and 3 percent, respectively, while the rate for potash was unchanged. For all crops, a greater proportion of acreage was treated with fertilizer in 1988 (table 1).

Fertilizer nutrient consumption stood at 19.2 million tons for the 1987 fertilizer year, only slightly less than the forecast 1988 consumption of 19.4-19.6 million tons (fig. 5). Fertilizer use in 1989 could exceed 21 million tons, up 7 to 10 percent from last year.

In addition to the uncertainty surrounding 1989 planted acres, fertilizer consumption may also be impacted by carryover from the stunted 1988 crop. Potassium and phosphorous are relatively immobile in most soils, and therefore 1989 application rates should reflect the unused portion of these nutrients applied last spring. Nitrogen, however, is much less stable with carryover affected by soil type, organic matter, denitrification and leaching. Leaching of course will be dependent upon the amount and distribution of precipitation from this fall through planting next spring. Most extension personnel are recommending a soil test be taken before fertilizer application begins in 1989.

Of major concern to farmers is the impact on prices of increased demand for fertilizer in spring 1989. Using the 1983-1984 period as a guide would imply price increases of near 5 percent (fig. 6). However, the domestic fertilizer industry is also influenced by international fertilizer markets. For example, China recently entered the market for urea and DAP which buoyed U.S. exports. Continued strong export demand for U.S. products with added domestic demand will likely translate into higher spring prices. Fertilizer prices between 1983 and 1988 were well below the peak use years of 1981 and 1982 due to falling demand and lower energy costs. Even a 10 percent rise in prices between spring 1988 and 1989 would leave nominal prices to farmers no higher than in 1981.

Pesticide Use

Estimates for pesticide use also closely follow planted acreage with herbicides accounting for an estimated 60 percent of all active ingredients, insecticides about 25 percent, and fungicides and other compounds the remainder. The herbicide market for the major crops of corn and soybeans is very mature. In 1988, 95 percent of the corn, soybean, and cotton acreages were treated with herbicides--unchanged from 1987 (tables 2-6). However, herbicide use on spring wheat dropped 6 percent to 83 percent of the planted acres. An estimated 38 percent of the winter wheat acres were treated with herbicides this year. Insecticides were applied to 35 percent of the corn acres, primarily to control rootworm larvae, 5 percent fewer acres than in 1987.

In 1988, atrazine was the most commonly used herbicide on corn while terbufos and chlorpyrifos were the most frequently used insecticides. For wheat, chlorsulfuron, 2,4-D and MCPA were the herbicides used most often. Trifluralin was the number one herbicide for cotton and soybeans.

EPA estimates that agricultural consumption of pesticides is around 800 million pounds of active ingredients (a.i.) with year-to-year variations due to shifts in planted acreage (fig. 7). Since corn, wheat, soybeans, and cotton account for the largest portion of pesticide use, changes in these crop acres will affect aggregate pesticide use. Hence with the corn, wheat and soybean acreage anticipated to go up next year pesticide consumption is expected to increase between 40 and 60 million pounds, which is 5 to 7 percent over 1988.

As was the case with seeds and fertilizer the drought did not significantly affect herbicide use, since nearly 85 percent of the treatments are pre-emergent. The drought may have made some late season insecticide applications uneconomical, such as in cotton, but led to increased applications in corn where the drought fostered spider mite infestations. Continued dry conditions could create herbicide carryover problems next spring, requiring farmers to alter normal crop rotation patterns.

Pesticide prices, as measured by USDA's prices paid index for agricultural chemicals, trended downward between 1984 and 1987 (fig. 8). The price index increased slightly in 1988 and is expected to rise further as corn and soybean acreage increases in 1989. A 2 to 4 percent increase in prices would bring the prices paid index up to the level recorded in 1984.

Agricultural Credit

Since 1984 farmer's total debt fell from over \$192 billion to an estimated \$140 billion at the end of 1988. In response to the economic stress in the sector and falloff in planted acres, the level of debt fell by over 25 percent during this period. While much of the debt reduction occurred through repayment, an estimated \$10-12 billion, was through forgiveness by both public and private lending institutions. Furthermore the record levels of Government payments since 1985 may have lessened the need for commercial credit. One of the reasons behind the economic stress of the 1980's was the sudden rise real interest rates from below zero in the 1970's to over 8 percent in the early and mid-1980's (fig. 9).^{2/} More costly credit for both old and new debt contributed to the fall-off in land values, decline in capital expenditures by farmers, and reduced levels of farm sector debt.

Farm debt at the end of 1988 is expected to remain near 1987's \$140 billion. Increased credit demand in 1989, especially for operating capital will likely lead to a modest increase in farm debt. Even with a small increase in farm debt, the agricultural sector's 1989 debt/asset ratio is expected to fall as land values appear to be strengthening. Credit availability will not likely be a concern for the majority of agricultural producers next year. Furthermore, prospects for stable agricultural interest rates in 1989 indicate that the cost of credit to farmers will not increase significantly.

Capital Purchases

Capital expenditures by farmers between 1980 and 1986 fell by nearly 60 percent. Rising real interest rates, declining commodity prices, curtailed exports, reluctance to take on additional debt, falling land values, reduced planted cropland, and a binge of capital spending in the 1970's led to very conservative levels of capital spending in the 1980's. Tractors and other farm machinery typically make up about 60 percent of all capital expenditures with buildings and land improvements accounting for about 25-30 percent and cars and trucks accounting for the remaining 10-15 percent. Large and medium-sized tractor purchases have been one of the hardest hit categories with unit sales off 60 percent between 1980 and 1986 (fig. 10).

1986 was apparently the end of a seven year slump for the farm machinery industry. Unit sales of new farm tractors, combines and other large pieces of farm equipment began to increase during the latter part of 1987 and continued to surpass year earlier levels through the first half of 1988 (fig. 11). The impetus for the surge in tractor sales appeared to have been the substantial price discounting offered by several major equipment manufacturers in August 1987. Although these discounts were phased out by the end of last year, unit sales continued strong through July of this year. Total sales of most major equipment categories in 1988 are likely to equal or exceed those of 1987, but the drought may have led to some changes in farmer's capital budgeting plans. This is particularly true of combine sales, which are closely linked to harvest prospects (fig. 12).
With the outlook for net farm income to rise in 1989, agricultural interest rates

^{2/} Real interest rate is defined as the bank prime rate minus the annual percent change in the Consumer Price Index.

to remain near year-end 1988 levels, and the agricultural sector's debt/asset ratio to fall, 1989 capital expenditures are expected to surpass those of 1988. Prospects for increased planted acreage and an aging farm machinery stock may also positively influence capital spending by farmers. Furthermore, 1989 will likely be the fifth consecutive year in which net cash income will be near or greater than \$50 billion, which should facilitate greater capital expenditure.

Petroleum Products

Consumption of petroleum products by agricultural producers has been steadily declining since 1978 (fig. 13). While acres planted obviously influence energy use, other factors are also important. Gains in engine fuel efficiency, the switch from gasoline to diesel engines, reduced tillage operations, larger multi-function machines, and innovations in crop drying and irrigation have contributed to the decline in fuel consumption. While no-till farming has not been widely adopted, reduced tillage systems are now as prevalent as conventional tillage systems (i.e., including the use of a moldboard plow) in many parts of the country.

The 1988 drought has affected energy use in opposite directions. Fewer harvested acres, lowered yields, and less moisture at harvest time have reduced energy needs for harvesting, drying and transportation. At the same time, the 1988 irrigation season was extended which increased electricity and natural gas use. Net energy use was likely down 2-4 percent from 1987 levels.

With planted acreage forecast to be up nearly 10 percent in 1989, energy use should rise slightly offsetting declines due to greater fuel conservation. The longterm trend in petroleum use has been down regardless of acreage levels.

Just as petroleum consumption in agriculture has been falling, petroleum prices have dropped almost continuously since 1981 (fig. 14). Crude oil prices have fallen during 1988 and currently are the lowest since 1986. It is clear that crude oil prices dictate the price farmer's pay for diesel fuel. As of November 1988, DOE was forecasting 1989 crude oil and diesel fuel prices to remain flat but unpredictable geopolitical forces will likely shape the final 1989 petroleum price structure. Since agriculture directly consumes only 3-4 percent of all energy used in the U.S., changes in the farm sector's usage will have no impact on petroleum prices.

Farm Labor

Whether measured in term of hours of labor required in agriculture or the number of persons employed on farms, agricultural labor use has fallen dramatically over the last 40 years (fig. 15). However, the rate of decline has slowed over the last few years as the adoption of labor-saving machines, chemicals and other technology has tapered off. At the same time, the type of labor used in agriculture is shifting, with a greater proportion of labor coming from hired sources rather than from operators and unpaid family members. With increasing farm size, hired labor will continue to be a large and growing component of many farm operations.

Roughly one-third of agricultural labor is employed on crop farms, one-third on

livestock operations, and the remaining third on fruit, melon, vegetable, tree nut and nursery farms. While employment tends to be year-around on field crop and livestock farms, specialty crop farms have wide seasonal swings in labor demand. These latter farms which are concentrated in Florida, California, and Texas depend on a large number of workers for short periods of time especially during harvest.

The Immigration Reform and Control Act (IRCA) of 1986 has interjected some uncertainty into the labor market for 1989 and beyond. In the past, illegal aliens were often a source of labor for those commodities requiring seasonal labor. Beginning December 1 of this year, agricultural employers become fully covered by IRCA which is designed to prevent illegal aliens from working on U.S. farms. IRCA's effect on labor availability, wage rates, labor costs, and farm production will ultimately depend on the decisions of farm employers and workers as well as the ability of the Immigration and Naturalization Service to enforce the various provisions of IRCA and other temporary worker programs.

Trends and Issues Shaping Agricultural Input Consumption and Production

- Farms with over \$250,000 in sales constitute less than 5 percent of all farms but produce over 55 percent of all cash receipts. At the same time these farms are responsible for nearly 50 percent of all cash expenses. Input distribution, technology adoption, and perhaps, agricultural productivity will be affected by the smaller number, but larger sized farms.
- While increased concentration in the farm sector is continuing, the trend is even more pronounced in the input industries. Major changes in the industrial organization of the farm machinery, fertilizer, agricultural, chemical, seed, and credit industries have occurred in the last five years. As these input industries have become concentrated they have taken on an international flavor. Agricultural input companies headquartered in Western Europe, Japan, and North America dominate the global input markets.
- Biotechnology research in both the private and public sector promises to transform or replace conventional inputs. Just as the mechanical, chemical, and computer technologies of the past changed input type, mix and intensity, livestock and crop genetic manipulation will do the same in the future. The established seed and chemical industries as well as the newer biotech firms, appear poised to bring a number of genetically engineered products to the market in the next few years.
- Farm programs will continue to exert influence on acres planted, commodity price, and farm income. The 1985 Food Security Act was innovative in several respects regarding soil conservation issues. The CRP and the conservation compliance provisions of the 1985 Act are designed to protect highly erodible lands. Both these measures affect input use either through a reduction of acres planted or by mandating a change in tillage practices to leave additional residue on the soil.
- Changes were recently made in the FIFRA legislation regarding pesticide testing or retesting for possible health risks. These tests will be costly and if the costs are passed onto farmers, pesticide prices will rise. Also, FIFRA changes could affect the availability of certain pesticides. Other

pesticide issues revolved around patent extension, groundwater contamination, liability issues, farm worker safety, and residues on food. The outcome of the Endangered Species Act may also influence pesticide usage patterns.

- Groundwater issues may also infringe upon the fertilizer industry especially in areas where nitrates have been detected in drinking water. A number of states have passed or proposed legislation aimed at protecting the drinking water of its citizens. The 1987 Water Quality Act promotes the concept of "best management practices" as a way of maximizing the benefit from using fertilizers yet minimizing the environmental side-effects on surface and ground water.
- While the ongoing GATT negotiations are currently emphasizing agricultural commodity issues, these talks have implications for agricultural inputs. Worldwide shifts in agricultural production in response to changing trade patterns will affect the current mix, intensity, and location of input consumption and resource use. Furthermore, the current round of negotiations will also consider proprietary rights; an issue with implications for technology development and transfer for biotechnology, seeds, pesticides, and other R&D intensive inputs.
- Low input or sustainable agriculture is an issue which currently enjoys the limelight within some parts of the agricultural research community. Primarily in response to groundwater and surface water quality problems, new technology development as well as reevaluation of traditional production practices are being encouraged. The substitution of land, labor or management for conventional inputs such as fertilizer and pesticides and the further adoption of reduced tillage systems are proposed as ways to reduce costs of production. If these practices are more widely adopted, the undesirable side-effects of agricultural production, such as soil erosion and water contamination, will likely be reduced. At the very least this program should alert farmers to the adverse environmental and economic consequences of input overuse.
- The Agricultural Credit Act of 1987 restructured the Farm Credit System. The System's ability to meet the requirements of the 1987 Act, development of the new secondary market for farm mortgages, and new borrowers rights provisions complicate the outlook for the agricultural credit industry.

SUMMARY

The prices and structural changes in the input industries and markets are major concerns for 1989. The expected rise in planted acreage in 1989 will lead to increased demand for cropland related inputs. After several years of declining acreage, most input industries have reduced their capacity which may restrict their ability to rapidly meet increased demands. This sets the stage for at least moderate input price increases in 1989. In addition to institutional changes in the agricultural credit industry and the farm labor market, a number of other input issues and trends require close monitoring by producers, agribusiness and government policy-makers.

Figure 1 -- Cash Expenditures/Farm Receipts

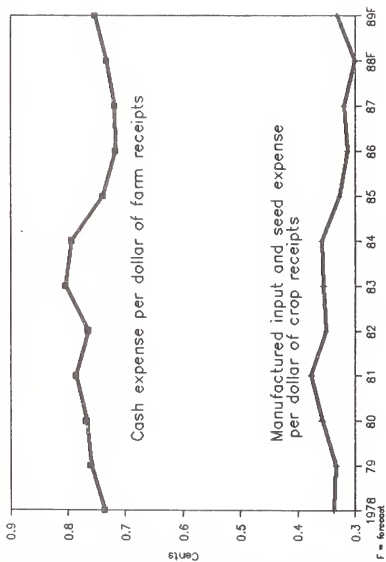


Figure 2 -- Area Planted to Principal Crops

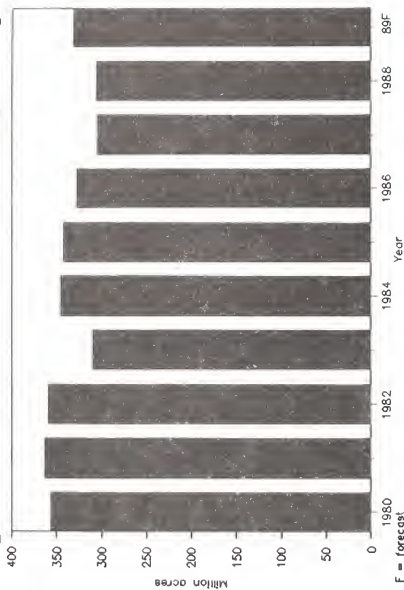


Figure 3 -- Seed Use for Major Crops

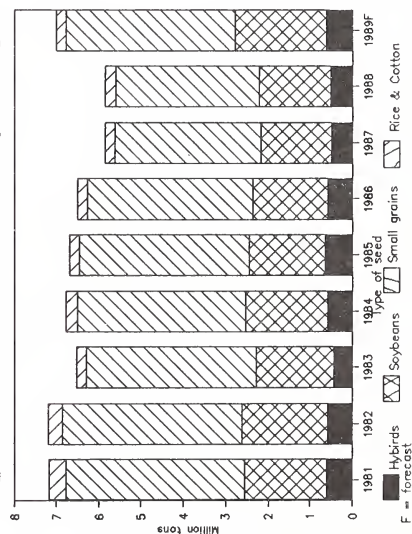


Figure 4 -- Seed Price Index

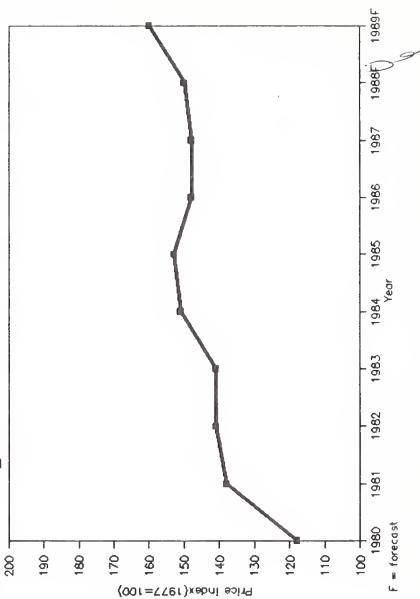


Figure 5 -- Fertilizer Nutrient Consumption

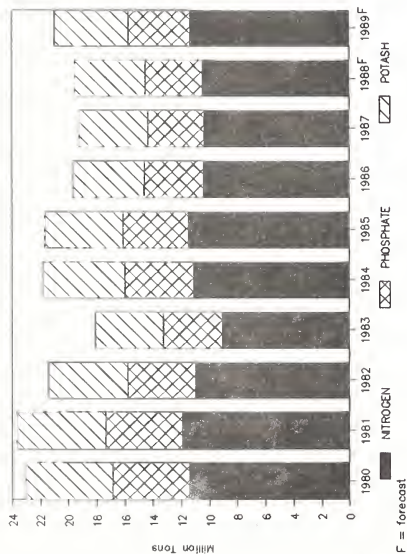


Figure 6 -- Fertilizer Price Index

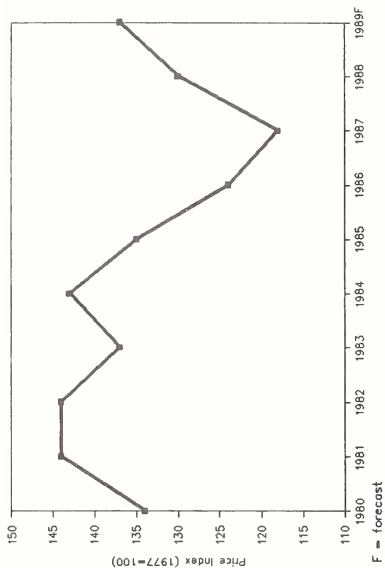


Figure 7 -- U.S. Agricultural Pesticide Use

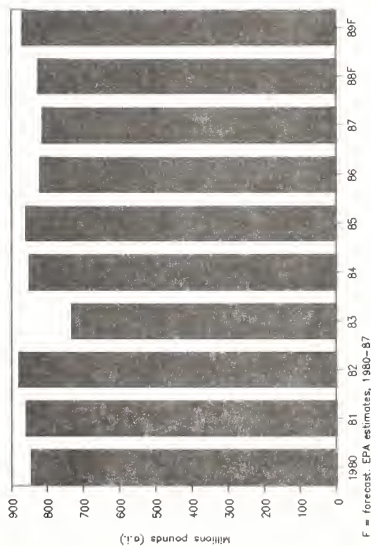


Figure 8 -- Agricultural Chemical Price Index

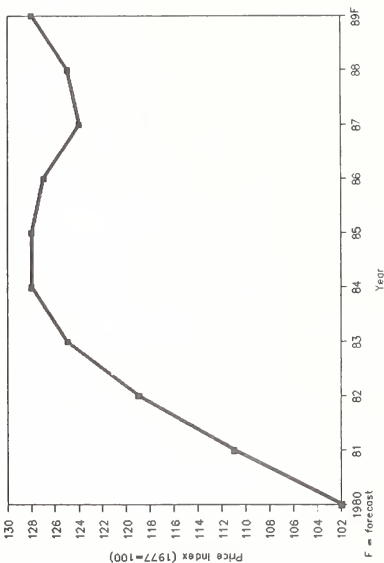


Figure 9 -- Farm Debt Change and Interest Rate

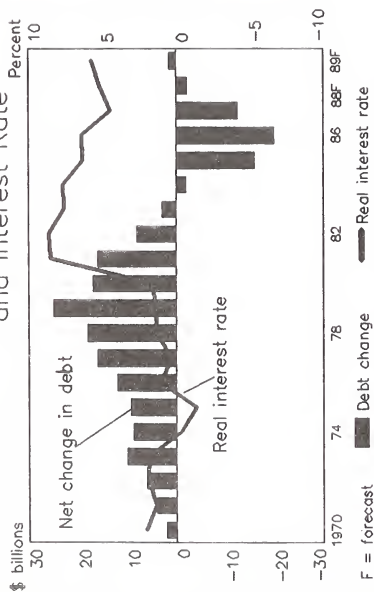


Figure 10 -- Tractor Unit Sales

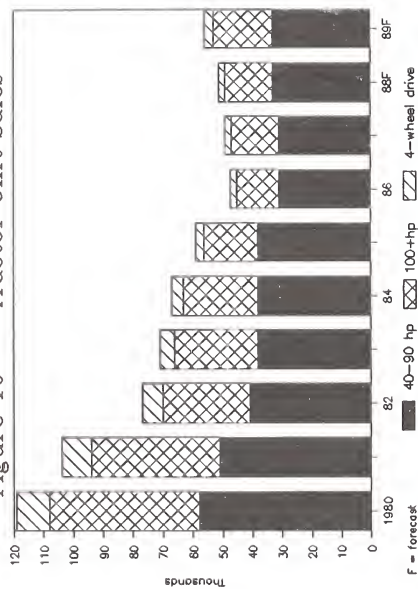


Figure 11 -- Tractor Unit Sales, 100 Plus HP

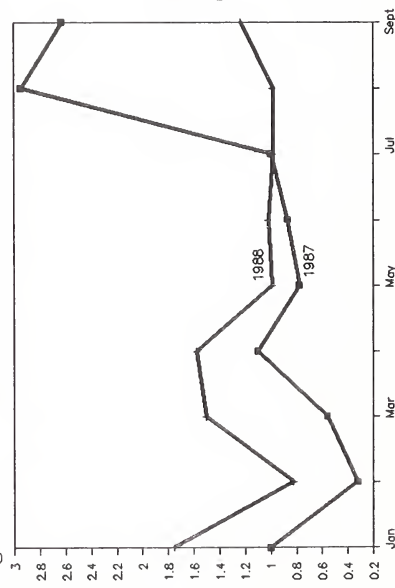


Figure 12 -- Sales of Self-Propelled Combines

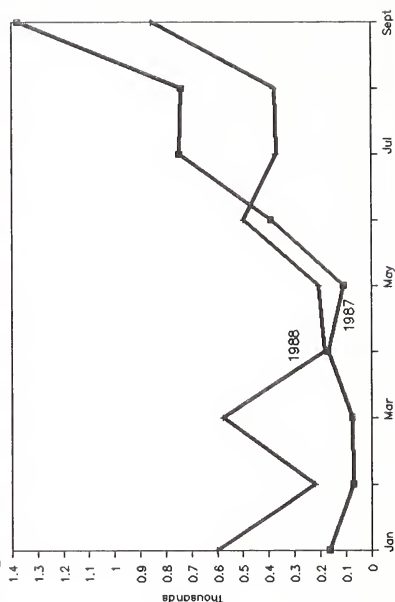


Figure 13 -- Farm Fuel Use

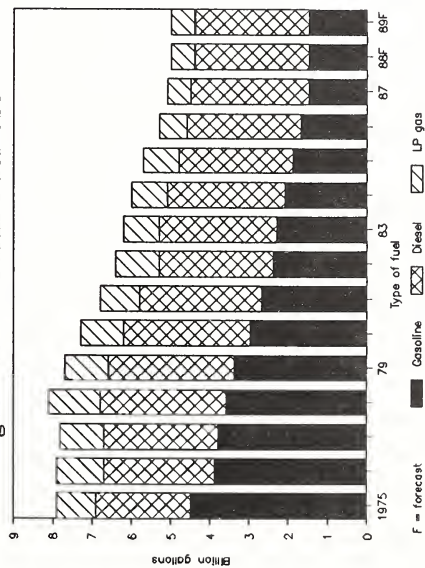


Figure 14 -- U.S. Crude Oil and Diesel Fuel Prices

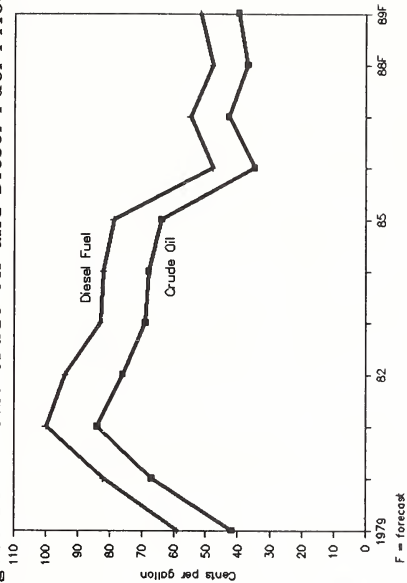


Figure 15 -- Farm Employment

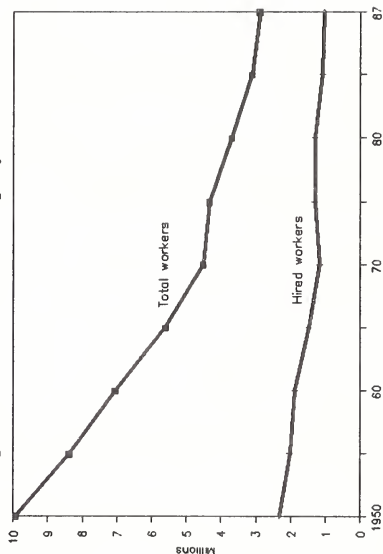


Table 1.-Fertilizer use on selected crops in the major producing States, 1988 (Preliminary)

State	Acres 1/	Acres receiving		Application rate		State	Acres 1/	Acres receiving		Application rate					
		N.	P2O5 K2O	N	P2O5 K2O			N	P2O5 K2O	N	P2O5 K2O				
Corn for grain															
Thousand	Percent		Pounds per acre		Thousand	Percent		Pounds per acre		Cotton					
IL	9,900	100	89	89	163	87	109	AZ	340	90	58	7	144	59	14
IN	5,200	97	92	85	146	71	113	AR	680	99	71	75	79	44	58
IA	11,300	99	91	87	139	57	78	CA	1,350	93	36	16	124	45	39
MI	2,100	100	95	95	129	61	103	LA	700	94	59	65	88	51	58
MN	5,700	96	90	87	118	52	65	MS	1,230	98	50	56	110	49	59
MO	2,200	98	85	87	132	58	69	TX	5,400	68	56	22	45	38	13
NE	6,900	99	72	36	142	38	22								
OH	3,300	99	96	93	158	80	111	Area	9,700	80	54	32	78	42	39
SD	3,150	75	57	30	80	38	26								
WI	3,450	98	95	97	87	56	77								
Soybeans															
Area	53,200	97	87	78	137	63	85	AR	1,050	100	38	35	94	37	43
								CA	440	86	27	13	98	55	*
								CO	2,350	62	13	2	43	17	*
								ID	1,170	90	54	6	100	36	21
AR	3,250	10	21	22	28	45	62	IL	1,220	98	92	80	98	79	95
GA	900	49	76	79	15	36	76	IN	700	96	85	85	72	58	76
IL	8,800	9	25	34	20	67	101	KS	9,400	89	50	4	53	34	31
IN	4,300	31	41	49	18	40	78	MN	2,000	100	93	67	103	41	38
IA	7,950	9	10	12	24	33	65	MO	1,550	99	77	83	90	52	69
KY	980	34	50	47	39	69	80	MT	3,600	69	67	6	38	27	22
LA	1,800	9	30	30	18	41	62	NE	2,000	73	33	2	43	29	*
MN	4,900	16	20	20	21	57	51	ND	7,100	75	67	9	47	29	16
MS	2,400	9	18	21	37	41	68	OH	920	100	96	96	70	60	76
MO	4,300	12	21	27	24	49	74	OK	4,800	86	44	13	70	30	13
NE	2,400	14	11	8	32	24	16	OR	660	99	22	14	73	34	35
NC	1,470	54	63	72	14	34	72	SD	1,300	73	57	3	42	25	*
OH	3,900	20	35	46	17	46	102	TX	3,100	70	45	9	80	39	24
TN	1,400	30	52	55	34	44	61	WA	1,750	100	26	6	69	24	32
Area	48,750	16	26	31	22	48	79	Area	45,110	83	53	18	64	37	52

* -- insufficient data Prepared by: H. Vrooman and H. Taylor - 202-786-1456

1/ Acres are harvested for all wheat and planted for other crops.

2/ Does not include winter wheat in MN, ND, and SD; spring wheat in CA, CO, and WA; and durum wheat in MN, MT, and SD.

Table 2--Selected herbicides and insecticides used in the major corn producing States, 1988
(Preliminary)

	IL	IN	IA	MI	MN	MO	NE	OH	SD	WI	Area
Thousand											
Acres planted	9900	5200	11300	2100	5700	2200	6900	3300	3150	3450	53200
Acres treated with											
Herbicides	9642	4996	11196	2052	5546	2126	6567	3220	2580	3160	51085
Insecticides	3831	1811	3317	835	1140	629	3799	1252	597	1501	18712
Percent											
Proportion with herbicides	97	96	99	98	97	97	95	98	82	92	96
Treated acre by active ingredients:											
Alachlor	32	37	32	42	33	25	35	29	26	43	33
Atrazine	88	94	66	97	34	100	81	83	37	68	74
Bromoxynil	1	1	14	2	13	3	2	2	5	7	6
Butylate	10	11	2	2	1	12	5	3	1	3	5
Cyanazine	17	15	29	20	29	27	16	20	9	38	22
Dicamba	16	7	25	6	33	3	7	23	35	5	17
EPTC	5	1	12	1	24	5	4	1	25	3	9
Metolachlor	29	27	26	27	17	17	16	38	11	18	24
2,4-D	12	8	21	9	20	2	9	16	19	2	13
Other	7	8	9	10	14	3	3	4	11	13	8
Proportion with insecticides	39	35	29	40	20	29	55	38	19	44	35
Treated acres of active ingredients:											
Carbofuran	3	6	11	17	8	6	9	10	5	5	8
Chlorpyrifos	35	21	41	40	14	50	30	30	9	12	30
Fonofos	12	21	13	20	5	nr	7	21	41	9	13
Phorate	6	10	6	11	24	6	3	3	18	25	9
Terbufos	33	23	22	9	49	6	47	30	27	46	32
Other	15	23	5	6	nr	32	13	5	nr	4	11

nr = none reported.

Prepared by: H.W. Delvo - 202-786-1456

Table 3--Selected herbicides used in the major winter wheat producing States, 1988 (Preliminary)

	CA	CO	ID	KS	MT	NE	OK	OR	TX	WA	Area
Thousand											
Acres harvested	440	2350	790	9400	2100	2000	4800	660	3100	1750	27390
Acres treated	340	544	664	3479	1251	500	2418	652	740	1541	12631
Percent											
Proportion treated	77	23	84	37	60	25	50	99	24	88	38
Treated acres by active ingredients:											
2,4-D	52	80	51	35	61	59	18	49	56	45	44
MCPA	36	nr	28	nr	15	nr	1	38	nr	20	5
Bromoxynil	17	nr	21	nr	2	nr	nr	16	nr	26	3
Chlorsulfuron	4	26	19	75	36	7	86	44	37	52	56
Dicamba	4	13	14	6	13	7	1	33	11	9	8
DPX-M6316	nr	nr	15	nr	nr	nr	nr	7	nr	14	2
Metsulfuron	nr	15	5	4	12	26	nr	18	9	39	10
Other	11	nr	56	7	18	nr	1	51	17	23	11

nr = none reported.

Prepared by: H.W. Delvo - 202-786-1456

Table 4--Selected herbicides used in the major spring and durum wheat producing States, 1988 (Preliminary)

	ID	MN	MT	ND	SD	Area	Durum ND
Thousand							
Acres harvested	380	2000	1500	4600	1300	9780	2500
Acres treated	324	1972	1071	3707	1089	8163	2317
Percent							
Proportion treated	85	99	71	81	84	83	93
Treated acres by active ingredients:							
2,4-D	76	21	84	55	55	52	55
MCPA	17	69	4	39	23	38	29
Bromoxynil	13	45	nr	4	10	14	4
Chlorsulfuron	nr	nr	40	2	13	8	5
Dicamba	15	13	29	13	29	17	19
Dicolfop-methyl	7	24	nr	12	3	12	7
Metsulfuron	nr	nr	7	7	10	5	12
Triallate	2	7	2	7	nr	5	17
Trifluralin	nr	4	nr	7	nr	4	33
Other	43	6	11	8	13	10	12

nr = none reported.

Prepared by: H.W. Delvo - 202-786-1456

Table 5--Selected herbicides used in the major cotton producing States, 1988
(Preliminary)

	AZ	AR	CA	LA	MS	TX	Area
Thousand							
Acres planted	340	680	1350	700	1230	5400	9700
Acres treated	336	680	1164	692	1223	5100	9195
Percent							
Proportion treated	99	100	86	99	99	94	95
Treated acres by active ingredients:							
Cyanazine	20	47	15	33	51	1	16
Fluazifop-butyl	12	10	7	25	31	4	11
Fluometuron	nr	123	2	100	128	2	35
MSMA	7	62	1	75	78	3	22
Norflurazon	nr	63	nr	53	102	nr	22
Pendimethalin	42	32	35	16	22	25	26
Prometryn	57	24	9	36	30	14	19
Trifluralin	48	37	55	46	61	79	67
Other	20	51	14	91	48	16	28

nr = none reported.

Prepared by: H.W. Delvo - 202-786-1456

Table 6.--Selected herbicides used in the major soybean producing States, 1988 (Preliminary)

	AR	GA	IL	IN	IA	KY	LA	MN	MS	MO	NE	NC	OH	TN	Area
	Thousand														
Acres planted	3250	900	8800	4300	7950	980	1800	4900	2400	4300	2400	1470	3900	1400	48750
Acres treated	2770	834	8704	4178	7849	916	1555	4900	2285	3792	2308	1286	3652	1308	46337
	Percent														
Proportion treated	85	93	99	97	99	93	86	100	95	88	96	88	94	93	95
Treated acres by active ingredients:															
Acefurofen	26	1	7	5	6	12	8	16	23	nr	1	11	9	27	10
Alachlor	8	7	7	37	11	15	14	17	1	20	13	27	34	6	16
Bentazon	17	5	31	17	28	16	6	46	25	8	9	12	21	28	24
Chlorimuron ethyl	9	37	10	5	6	17	33	1	17	34	1	20	3	19	11
Dimethazone	nr	nr	13	5	23	2	12	5	nr	6	29	1	4	1	10
Fluazifop-butyl	6	1	1	5	2	24	23	5	12	7	5	11	3	24	5
Glyphosate	2	4	2	4	19	7	3	18	3	3	7	20	2	9	8
Inazaphin	39	20	29	25	21	29	38	3	31	41	41	26	21	53	27
Metolachlor	6	1	9	17	3	8	15	4	3	4	4	3	30	2	9
Metribuzin	15	55	14	38	26	12	38	22	37	28	28	15	43	21	26
Permethalin	12	37	20	8	14	5	13	3	26	17	17	18	8	13	14
Trifluralin	61	47	40	17	61	38	31	53	62	44	41	18	7	56	43
Other	13	21	34	31	29	34	31	48	20	20	20	30	38	19	30

nr = none reported.

Table 7--Seeding rate and cost for selected crops in major producing States, 1988
(Preliminary)

Crop/ State	Acres planted	Per acre		Crop/ State	Acres harvested	Per acre	
		Rate	Cost			Rate	Cost
Corn for grain	Thous.	Kernels	Dollars	Winter wheat	Thous.	Pounds	Dollars
IL	9,900	25000	18.63	AR	1,050	130	11.05
IN	5,200	24000	18.32	CA	440	128	13.02
IA	11,300	24700	19.16	CO	2,350	43	3.17
MI	2,100	23700	19.43	ID	790	89	9.38
MN	5,700	25800	21.44	IL	1,220	110	12.42
MO	2,200	20800	16.48	IN	700	119	14.60
NE	6,900	24100	18.21	KS	9,400	60	5.64
OH	3,300	25500	19.95	MO	1,550	116	10.88
SD	3,150	18000	14.35	MT	2,100	60	5.22
WI	3,450	24400	17.18	NE	2,000	66	4.01
Area	53,200	24100	18.64	OH	920	134	14.63
Soybeans		Pounds	Dollars	OK	4,800	72	5.08
AR	3,250	52	9.23	OR	660	88	8.55
GA	900	51	10.86	TX	3,100	70	6.80
IL	8,800	61	13.21	WA	1,750	66	6.59
IN	4,300	59	11.73	Area	27,390	75	7.67
IA	7,950	60	13.70	Spring Wheat			
KY	980	60	10.96	ID	380	109	13.04
LA	1,800	57	12.58	MN	2,000	112	10.79
MN	4,900	68	12.20	MT	1,500	62	4.79
MS	2,400	52	9.44	ND	4,600	90	7.53
MO	4,300	59	11.61	SD	1,300	85	8.07
NE	2,400	58	13.06	Area	9,780	90	8.58
NC	1,470	59	12.36	Durum wheat			
OH	3,900	75	14.70	ND	2,500	99	8.05
TN	1,400	51	10.05				
Area	48,750	62	12.86				
Cotton							
AZ	340	15	9.52				
AR	680	13	6.27				
CA	1,350	18	12.10				
LA	700	13	6.60				
MS	1,230	13	7.15				
TX	5,400	20	8.13				
Area	9,700	18	8.38	Prepared by: M. Gill - 202-786-1456			

Prepared by: M. Gill - 202-786-1456

This table and previous tables contain preliminary information about fertilizer, seed, and pesticide use during 1988. Final tables and additional data will be published in "Agricultural Resources--Inputs Situation and Outlook Report" to be issued in February 1989.

ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

United States Department of Agriculture
Washington, D.C.



Revitalizing the Farm Credit System

Dr. Marvin R. Duncan
Acting Chairman and Chief Executive Officer
Farm Credit Administration
McLean, Virginia
December 1, 1988

At this time last year, the Congress was in the final stages of crafting legislation that would provide financial support for the ailing Farm Credit System, expand the rights of borrowers from that system, and permit its institutions to broadly restructure themselves. One year later, the Agricultural Credit Act of 1987 is in place along with almost all the regulations to implement the act. Farm Credit System institutions themselves have experienced changes as a result.

All Farm Credit Districts were required to merge the Federal Land Bank and Federal Intermediate Credit Bank into a single entity that is now called a Farm Credit Bank. That was accomplished July 6, 1988. Moreover, stockholders of 11 of the 13 Banks for Cooperatives have voted to merge their institutions to form a National Bank for Cooperatives effective January 1, 1989. Four Farm Credit Banks have been certified to receive financial aid and one is in receivership.

From a regulatory standpoint, the Farm Credit Administration (FCA) has devoted a huge amount of time in the past year developing regulations to implement the new law, including comprehensive regulations on mergers, capital standards for system institutions, borrower rights, and the Federal Agricultural Mortgage Corporation (Farmer Mac), which will make possible the creation of a secondary market for farm real estate mortgage loans. Although there is still work to be done in completing the regulations, most of this effort has been accomplished. Chief among remaining regulations to be promulgated are those to implement the establishment of the Farm Credit System Insurance Corporation and Farm Credit Insurance Fund to insure the timely payment of principal and interest on bonds, notes, and other obligations of system institutions.

With the recent improvement in the farm economy, the problems facing agricultural lenders appear to be turning around. While the Farm Credit System, after three years of operating losses, reported net income of \$434 million for the first three quarters of 1988, this resulted from a reversal in loan loss provisions of \$489 million. Nevertheless, the system has made some progress in increasing the level of its accruing loans, reducing the amount of nonaccruing loans, and disposing of a large amount of acquired property. These developments are positive signs that many institutions are moving toward revitalization and a brighter future.

In my remarks today, I want to focus on some issues that will be facing the system in the period ahead, especially those that deal with financial assistance and the regulatory environment. I also want to look a bit more closely at the system's recent financial performance because the numbers, while encouraging, must be interpreted carefully. My closing comments will address some of the key management problems yet to be resolved before system institutions are fully revitalized and successfully serving the credit needs of agriculture in what portends to be a highly competitive environment.

Financial Assistance to the Farm Credit System

The law established a Farm Credit System Assistance Corporation that may issue up to \$4 billion in 15-year uncollateralized bonds guaranteed by the U.S. Treasury. It will use those funds to buy preferred stock in troubled system institutions. The assistance corporation, with funds provided by the U.S. Treasury, will pay all interest on these bonds for the first five years. During the second five years, the assistance corporation will pay half the interest and system institutions the other half. During the third five years, system institutions will pay all of the interest. At the end of 15 years, the Farm Credit Administration in consultation with the U.S. Treasury will determine a schedule under which the system will repay all interest payments previously made with Treasury funds. Eventual repayment of all obligations will come from funds of system institutions or by refinancing the debt. Refinanced obligations, however, will carry no Government guarantee.

As a condition to triggering the issuance of these bonds, system institutions were required to make a one-time stock purchase in the assistance corporation. Though this relatively small purchase was made, it was and still is being opposed by some system institutions much in the way they opposed the self-help provisions of the Farm Credit Amendments Act of 1985, effectively defeating its purpose.

The assistance corporation issued \$450 million of U.S. Treasury-guaranteed debt in July 1988 and offered an additional \$240 million in late November. Through November 15, 1988, system institutions had been certified for capital assistance of up to \$373 million through such issuances. The remainder of the proceeds are used primarily to provide funds to retire borrower stock that is protected by law and to pay certain accruals under the system's capital preservation agreements. This method of providing assistance circumvents the Federal budget constraints and, in effect, keeps the Government out of partial ownership of system institutions.

Administering Financial Assistance

Troubled institutions of the system do not have carte blanche when they receive financial assistance. It is not business as usual or a continuation of policies and procedures that contributed to their difficulties.

To help ensure assistance is wisely and prudently used, the law established the Farm Credit System Assistance Board, made up of the Secretary of the Treasury, and a farmer experienced in financial matters. The assistance board decides whether to grant assistance, determines the amount, and can impose conditions on institutions as a prerequisite to receiving assistance.

An institution may apply for assistance if the value of its capital stock falls below par under Generally Accepted Accounting Principles, but must apply for assistance if the value of the stock falls below 75 percent of par. In practice, the assistance board has required institutions applying for assistance to present a plan that holds the promise of returning the institution to viability. Three banks presented plans that were acceptable to the assistance board and were granted assistance. The plan presented by a fourth bank was unacceptable, though it did receive \$45 million in interim assistance before being placed in receivership on May 20, 1988. So while the legislation is designed to assist system institutions to return to viability, it does not guarantee that all will survive.

Further Restructuring of the Farm Credit System

In the coming months, stockholders of system institutions will consider further restructuring proposals, in addition to the mergers that have already taken place or that will take place.

In July of 1989, the stockholders of the newly formed Farm Credit Banks will consider a proposal to reduce the number of districts, and hence the number of banks, to no fewer than six.

Meanwhile, the stockholders of the Federal Land Bank Associations and Production Credit Associations serving substantially the same territories will consider merger proposals. If they choose to merge, the resulting associations will become direct lenders and will be authorized to offer short, intermediate, and long term credit to borrowers. Such mergers could result in non-exclusive territorial charters for some associations.

The last part of the potential structural change is that the law allows reconsideration of mergers that have already taken place, provides for associations to petition to become affiliated with a different district, and establishes a mechanism by which institutions could leave the system and obtain new charters under other authorities.

Secondary Market for Agricultural Real Estate Loans

The act established the Federal Agricultural Mortgage Corporation, commonly known as Farmer Mac, as a Federally chartered instrumentality of the United States.

Its purpose is to facilitate the development of a secondary market for agricultural real estate loans by providing guarantees on securities that represent either interests in pools of such loans or that are collateralized by pools of such loans. These guarantees will be made possible by a special reserve funded by guarantee fees and backed by a \$1.5 billion line of credit from the U.S. Treasury.

The secondary market is intended to provide lenders with greater liquidity and lending capacity in extending real estate mortgage credit to farmers, ranchers, and rural homeowners. It is further intended to increase the availability of long term agricultural credit and provide borrowers with funds at more stable rates, including fixed rates.

Very briefly, qualified agricultural real estate mortgages will be sold on a non-recourse basis by loan originators to certified agricultural marketing facilities called poolers. The poolers will package the loans, in accordance with statutory requirements and standards established by Farmer Mac, into pools that serve as collateral for securities sold to the investing public.

The advent of a secondary market for farm real estate loans levels the playing field in that arena and will undoubtedly result in additional competition for Farm Credit System institutions. But they too have an opportunity to participate in that market as loan originators, poolers, or both.

Assistance to Distressed Borrowers

The Farm Credit Amendments Act of 1985 contained an array of borrower rights provisions. The new law reaffirms the rights of borrowers to have access to loan documents, to be informed of real interest rates and what could affect them, to have access to stockholder lists for business purposes, and to appear before a credit review committee for reconsideration of loan applications that have been denied or reduced in amount. It adds to that appeal process, at the applicant's expense, an independent appraisal of collateral. It also requires the institution to provide the borrower, at his or her request, with each appraisal of collateral made or used by the institution.

The new law protects borrowers from foreclosure for failing to post additional collateral if all accrued principal, interest, and penalties with respect to their loans have been paid. It also protects borrowers from acceleration when the loan is current unless the borrower sells or otherwise disposes of collateral.

If an institution offers more than one interest rate, at the request of the borrower, it must review the loan to determine if the proper interest rate has been established, provide the borrower with a written explanation of the basis for the rate being charged, and provide a written explanation of how the borrower's credit status can be improved to receive a lower rate.

All Farm Credit System institutions that make loans to farmers are required to restructure distressed loans if the cost of restructuring is less costly to the institution than the cost of foreclosure. The law and regulations of the Farm Credit Administration detail elements to be considered in determining these costs. If restructuring is denied, the borrower can appeal the decision through a credit review committee.

When property is acquired through foreclosure or voluntary conveyance, the law establishes the right of first refusal for certain previous owners. In general, qualifying previous owners must be given the opportunity to purchase or lease the property at fair market value or to make an offer at below fair market value when the institution first decides to sell or lease the property. If an institution decides to sell or lease acquired property through a public auction, competitive bidding process, or other similar public offering, the previous owner must be notified, apprised of the minimum amount of an acceptable bid, and informed of any conditions to which the sale or lease is subject. If two or more of the highest bids received are in the same amount and one is offered by the previous owner, the institution must accept the previous owner's offer. In no instance, however, is the institution required to provide financing for a previous owner.

These borrower rights provisions hold forth the premise that revitalized borrowers can help revitalize the institutions from whom they borrow.

Capital Standards

On September 28, the Farm Credit Administration Board approved final regulations governing capital standards for Farm Credit System institutions, which it considered essential in the revitalization process. Institutions will be required to maintain a 7-percent risk adjusted capital ratio net of loan loss reserves. The capital will be in the form of at-risk capital stock and retained earnings. The level of capitalization required by the regulations is, in fact, lower than some institutions maintained prior to the recent period of financial adversity. Also, the regulations do away with the "double-duty dollar," or double counting of assets on combined balance sheets.

The risk based capital standards conform very closely to standards adopted by Federal regulators of banks and thrift institutions. These standards are closely patterned after the Basel agreement, a plan for financial institution capitalization agreed to by 12 industrialized countries in late 1987.

A majority of system institutions are expected to achieve the risk-based capital requirements within the five-year phase-in period. The ongoing process of restructuring should permit many of the weaker units to achieve the standards over a somewhat longer period.

A stronger capital base will make Farm Credit institutions more resilient and better able to weather stressful periods. It will also provide incentives for policies that promote safety and soundness.

Finally, a better capitalized system will provide assurances to stockholders and investors about the viability of the institutions, an essential ingredient in revitalization.

Financial Condition of the Farm Credit System

As I review the financial condition of the Farm Credit System as reported for the first nine months of 1988, keep in mind that these are aggregate figures; totals for 26 banks and more than 350 associations, all separately chartered, independent, borrower-owned credit cooperatives. And that is precisely how they are examined and regulated, one by one, with each board of directors being held responsible for the operating results of its particular institution. What we've found in that examination process is that many are in acceptable financial health, while others have weak vital signs at best.

System institutions reported an increase in accruing loan volume from \$47.2 billion on December 31, 1987 to \$48.5 billion on September 30, 1988. They also reported non-accrual loans decreased from \$5.2 billion to \$4.0 billion during that period. Non-earning assets -- non-accrual loans and acquired properties -- were reported to have declined by \$1.3 billion or 21.8 percent since the end of last year.

On September 30, 1988, non-earning assets constituted 9.0 percent of total loans and loan related assets, compared with 11.4 percent on December 31, 1987. Non-earning assets are still high, but progress is being made in reducing them.

As I said earlier, the system's net income of \$434 million was essentially derived from a large reversal in its provision for loan losses. Nevertheless, net interest income for the first nine months of 1988 was \$571 million, compared to \$353 million for the same period in 1987. Encouraging is the fact that the third quarter of 1988 was the second consecutive quarter since the first quarter of 1986 that the system's net interest income was sufficient to cover its operating expenses. However, the system has not yet managed to return to profitability on the basis of operations. And that simply must occur and be maintained if these institutions are to rebuild capital and return to financial health.

Challenges Now and in the Future

If the Farm Credit System is to be revitalized, there are a number of challenges it must face.

First, it must continue to reduce its non-earning assets, both in amount and as a percentage of loans and loan related assets. How well that can be done will depend on the degree to which system institutions can restructure non-accrual loans and return them to accruing status, their success in disposing of acquired properties, their ability to add quality credits to their loan portfolios, and continued improvement in the agricultural economy.

Second, its institutions must choose the structure that will result in the highest degree of efficiency and effectiveness. But no matter what corporate structure is chosen, efficiency and effectiveness will stem from the operational structure that is put in place. Institutions might do well to consider one that is flatter with fewer layers of management; has more autonomous, close-to-the-market units; and more local authority to develop, package, and price loan products.

Third, if institutions are merged, they might want to look for ways to lean down their organization, trimming unneeded layers of management and decision-making costs.

Fourth, they must work their way through the high cost debt instruments they have outstanding.

Fifth, they must give more attention to funding and pricing. They must attain a better match between assets and liabilities and price loans in relation to their marginal cost of funds, rather than on average cost.

Sixth, they must use financial assistance sparingly and prudently, never forgetting that their stockholders must ultimately repay the assistance in full.

And finally, they must improve their image with their borrowers. Good public relations is not achieved with blue smoke and mirrors. It is simply a matter of consistently doing an outstanding job and having that recognized by the public. And for Farm Credit System institutions, the most important public is their borrowers/stockholders.

In the Agricultural Credit Act of 1987, Farm Credit System institutions have the tools with which to revitalize themselves. But it is up to their stockholders to elect directors who will craft wise and prudent policies and hire management that will successfully implement those policies.

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For Release: December 1, 1988

ONE YEAR LATER: THE FARM CREDIT SYSTEM ASSISTANCE BOARD

Eric P. Thor

President and Chief Executive Officer

Farm Credit System Assistance Board

It's good to be with you today.

This has been an eventful year. Last December, about the time of last year's Outlook Conference, Congress passed the Agricultural Credit Act of 1987. The Act, signed by the President January 6 of this year, made profound changes in the Farm Credit System; changes that, after a year, are still resonating throughout agricultural America. One important change was the creation of the Farm Credit System Assistance Board. I left the Farmers Home Administration to become president and CEO of the Assistance Board in January, 1988.

Today I would like to give you a progress report on the Farm Credit System Assistance Board's activities.

The Agricultural Credit Act of 1987 was the result of a lot of hard work and compromise by Congress, the Administration, the Farm Credit System, rural independent bankers and many others. In November a year ago, after months of stalemated negotiations, the agriculture committees were still meeting far into the night, trying to meld House and Senate versions of the bill with acceptable compromises that would not alienate a number of competing interests within the financial community. Gloomy predictions of Farm Credit System disintegration and uncontrollable fiscal hemorrhaging were rampant. Farmers and ranchers in need of reliable, affordable agriculture credit were walking the halls of the Russell and Longworth Buildings, complaining to Congress of high interest rates and poor service. It was from these conflicting pressures that the Act was created.

The Act is a comprehensive, omnibus law that affects all aspects of the nation's agricultural credit delivery system. It created the Federal Agricultural Mortgage Association, or Farmer Mac, the new secondary market for farm real estate loans and probably the hottest topic in ag lending today. It created a "Demonstration Project" designed to promote sale of System inventory land to eligible FmHA borrowers through a Federal guarantee; the FmHA is preparing final regulations to get this program started. It created the National Special Asset Council and district special asset groups to assure proper implementation of the Act's broad, new borrower rights and loan restructuring provisions.

And most importantly from my point of view, the Act created the Farm Credit System Assistance Board and the Financial Assistance Corporation, to deal with the System's impaired institutions. The Board currently is composed of Secretary of Agriculture Dick Lyng, who is chairman; Deputy Secretary of the Treasury Peter McPherson; and Indiana farmer Will Erwin. Each of these individuals is deeply committed to a better rural America.

The Act is quite specific in defining which System Institutions are eligible for federal assistance. If the book value of a System Institution's stock drops below par value, the institution may apply to the Assistance Board for certification that it is eligible to receive federal financial assistance. If the book value of a System Institution's stock is valued below 75 percent of par, it has no option; it must apply for certification. When considering these applications, the Assistance Board examines the institution's level of impairment and its projected financial management plan. If the Board determines that direct assistance through certification is not appropriate, the Act provides for other options, such as merger or consolidation. The Assistance Board must choose the best course of action that will protect credit services at reasonable rates to farmers and ranchers in the district served by the troubled institution. (FIGURE 1)

1987 CREDIT ACT

- WORKABLE AND FLEXIBLE APPROACH**
- IMPAIRED STOCK IS THE TEST**
- CERTIFICATION MAY NOT BE APPROPRIATE**
- MERGER OR CONSOLIDATION**
- OTHER OPTIONS AS DEFINED BY THE ACT**

FIGURE 1

If the Assistance Board decides it is appropriate to provide financial help to the System applicant, the Act provides financing for such assistance through sale of preferred stock by the impaired System Institution to the Financial Assistance Corporation. FAC raises the money to buy the stock by selling bonds. The first sale was completed last summer and another is being planned. The number and amount of FAC bond sales will depend on the amount of assistance as the Assistance Board program progresses.

It has been an exciting time for the Board. The Act gave the Assistance Board five years -- and up to \$4 billion to bring the financially troubled Farm Credit System back to financial health. During our first year we worked with several System banks, and I believe we have made substantial progress toward our goal, which essentially is to return the System to financial viability and put ourselves out of business in the mid-1990s. (FIGURE 2)

THE ASSISTANCE BOARD WAS CREATED WITH LIMITED PURPOSES

- THE FINANCIAL SERVICES INDUSTRY IS RAPIDLY CHANGING**
- THE ASSISTANCE BOARD WILL FOCUS ON ONLY A FEW**
- SOUND FINANCIAL DECISION MAKING IS THE KEY**
- OUR ANALYSIS STARTS AND ENDS WITH THE BALANCE SHEET**

FIGURE 2

The Assistance Board has acted on requests from the Jackson Federal Land Bank and the Louisville, Omaha and St. Paul Farm Credit Banks. These banks represent:

- \$17 billion in loan volume;
- 15 agricultural states containing close to 225,000
- farmers and ranchers; and
- one third of U.S. agricultural production by value.

In addition, we have approved a number of transactions resulting in release of frozen borrower stock.

The Assistance Board has a small, 20-person staff that I am proud to say has accomplished a great deal in a short time. Each member of the staff contributes specific expertise and has worked hard to get the job done. The key to this effort has been back-to-basics: sound financial analysis and management of each Institution's balance sheet and income statement. By working with each bank's management and board to develop innovative, forward looking financial programs, we have held the cost of government financial intervention to a minimum; much less to date than Congress originally anticipated. Importantly, this means less long-term debt that the System must repay, a smaller bite from taxpayer dollars, and hopefully lower rates over the longer term for farmers and ranchers.

The assistance to the Louisville, Omaha and St. Paul banks will allow them to save between \$650 and \$850 million over the next few years by restructuring their liability and cost structure. As a result, these banks should be able to balance their assets and liabilities, minimize their exposure to fluctuating interest rates, and compete in today's lending environment. (FIGURE 3)

COMPETITION

"8.75% 30 YEAR FIXED RATE

on these properties"

Iowa Realty Section of the Des Moines Register

October 23, 1988

FIGURE 3

The competition this creates should ultimately provide substantial benefits to farmers and ranchers through lowered interest rates. Until recently the Farm Credit System has been unable to compete effectively for new agriculture credit borrowers. Just as in the commercial banks -- and perhaps to an even greater degree -- the System was hit hard by high interest rates and the long-drawn-out agriculture recession. I'm sure this is a familiar story to many of you, if you have had to shop for available credit sources in recent years.

But I want to make an important point. Neither Farm Credit System institutions nor weaker agricultural banks can blame their financial problems entirely on a slump in agriculture economy. Financial institutions in serious financial trouble today are not just victims of economic hard times. That excuse may have worked a few years ago, but today we are enjoying the longest period of sustained peacetime growth in our nation's history. The slower-moving agriculture economic recovery appears to be moving ahead, in spite of last summer's drought. In fact net farm income for 1988 could surpass last year's \$57.1 billion record level. Higher commodity prices, this summer's drought legislation, and a good growing season in many parts of the country will provide near normal income for many farmers in 1988. Farmers unaffected by drought conditions are having a banner year thanks to the higher prices for their undamaged crops.

Barring a similar catastrophe next year, the country's farmers and ranchers should be in pretty good shape when Spring planting season rolls around. The good news for agricultural borrowers is that their agricultural borrowers should be able to make this year's payment schedule. However, a note of caution, having come from the banking industry, I am a realist. We will not know for several months the full extent of the drought's impact on the farmers' repayment ability.

Regardless of the economic conditions surrounding agriculture credit, institutions that are in financial difficulties must look within their structures for reasons other than economic doldrums. The Comptroller of the Currency last summer released a report entitled "Bank Failure: An Evaluation of the Factors Contributing to the Failure of National Banks." This report studied a broad cross section of failed, rehabilitated and successful banks, and pointed out that failed banks are almost never simply the result of depressed economic conditions.

Successful bankers and their directors must understand the risks of their profession, ensure the expertise of their board and management, and establish an operation capable of handling the products and services they offer.

Agricultural bankers and directors of banks must concentrate on the basics of finance. These include:

- Marginal Loan Pricing. With interest rates ever changing, every financial institution must cover the cost of money plus the costs of operation.

- Asset and Liability Management. Each institution's unique loan portfolio and funding strategy must be carefully managed. As the size of the institution grows, so does the complexity of its funding. Good asset and liability management is critical to the success or failure of any financial institution.

- Loan Restructuring. The successful banker must be able to move quickly to identify and address problem loans to avoid the growing number of non accruing loans that have burdened the portfolios of weaker institutions in recent years.

- Effective Cost Controls. In any business one must focus on costs. The era of high expenses and lack of cost controls in deregulated financial institutions is over. Many financial institutions must survive on 50 to 75 basis point margins. Customers today will switch institutions for 100 basis points or less. The Farm Credit System lost over \$35 billion in assets from 1984 to 1988 in large measure because many good farmers -- over 100,000 borrowers -- walked out. Price is important.

The institutions that have done this have weathered the economic storms of recent years and have remained afloat. Those with weak management and board leadership have sunk, or are desperatelyailing to stay afloat.

Because management and leadership are so important to long-term viability, the Assistance Board considers the fiduciary planning and capability of each System applicant's management team before making a decision. The money each institution receives through issuing preferred stock to the Financial Assistance Corporation must be paid back eventually by that institution, or by the System. For this reason the Board will not simply rubber stamp an application from an impaired System institution and write a big check. To do so would be to invite future failure and would be a great disservice to the System, to the farmers and ranchers and to America's taxpayers, who initially pay all or part of the interest on FAC bonds for the first ten years.

The St. Paul assistance package of up to \$133 million was approved in October. There has not been enough time to measure St. Paul's progress, but we are optimistic that the program will result in steady fiscal improvement.

To date our Louisville and Omaha assistance packages appear to be success stories. Louisville had a number of problems, including a high level of non-accrual loans, flight of quality borrowers, high debt cost, and their third set of management and board in five years. Before receiving Federal assistance, the Louisville Federal Land Bank had assets of \$3.9 billion and liabilities of \$3.7 billion. (FIGURE 4) As a result of approximately \$90 million financial assistance from the Assistance Board the Louisville FLB, now the Louisville Farm Credit Bank, has significantly reduced its average debt cost. This will enable the bank to reduce its expenses by approximately \$140 million over the next 6 years. The Bank will now be able to provide credit to the district's borrowers at competitive rates without weakening the bank's financial condition.

The Omaha FLB was beset by similar problems. Their assistance package has significantly reduced the bank's operating cost and streamlined its credit delivery system. Restructuring these two areas could save up to \$250 million or more over the next few years.

FARM BANK

DIRECTORS AND MANAGEMENT CONTROL

ASSETS = LIABILITIES + EQUITIES

<input type="radio"/> accrual	<input type="radio"/> notes	<input type="radio"/> borrower
<input type="radio"/> nonaccrual	<input type="radio"/> bonds	stock
<input type="radio"/> property	<input type="radio"/> other	<input type="radio"/> preferred
		stock
		<input type="radio"/> investments

\$3.9 Billion = \$3.7 Billion + \$0.2 Billion

FIGURE 4

In our most controversial and difficult action, the Board recommended to the Farm Credit Administration Board that FCA name a receiver for the Federal Land Bank of Jackson. We worked with the Jackson FLB management and board for several months and met with area farmers and ranchers as well as other interested parties before making this tough decision. After much consideration we concluded that recommending that the FCA put the bank in receivership was the best option for the area farmers and ranchers and American taxpayers. Our responsibility to area farmers and ranchers and to American taxpayers allowed no other choice.

The FCA and its receiver are now dealing with the situation in Jackson, and are receiving bids on the Jackson FLB loan portfolio. It is not known today whether there will be a shortfall, or how much, once the receiver has disposed of Jackson's assets. Throughout the process our primary concern has been to find the least costly way to permanently establish and maintain available and affordable credit for farmers and ranchers in Mississippi, Alabama and Louisiana. There is a real possibility for future mutually advantageous arrangements between the Jackson FICB and a contiguous System district bank. Texas and the Jackson FICB have announced that they have reached a preliminary agreement.

Obviously, such a merger requires regulator and stockholder approval. Nevertheless, this action does show that System leaders are looking forward to establishing permanent agricultural credit service to farmers and ranchers in the Jackson district. This is a positive step. We are continuing to monitor developments in Jackson as well as plans for mergers throughout the System.

To summarize:

In all our dealings, the Assistance Board has maintained priorities that were set forth in the Act and have been affirmed by the farmers and ranchers with whom we've met throughout the country.

First, we must assure that farmers and ranchers in troubled Farm Credit districts will have credit available at competitive rates.

Second, we must protect borrower stock as required by the Act. And third, we must seek the best method of assistance to assure long term viability for the System as a whole, again realizing that perhaps not all individually troubled Institutions can be saved.

Beyond these priorities we realize that every assistance case is unique. Because of this we've tried to set two broad guidelines for the management of the assistance package.

First and most importantly, we try to ensure the safety of the taxpayers' investment. We won't assist a board and management team that doesn't have a viable plan for recovery or the expertise to implement that plan. Board and management teams must demonstrate the ability to succeed through improved operation and forward-thinking management practices. If they can't do that, we won't waste the taxpayers' money.

Second, we attempt to achieve financial viability for the institution at the least cost to the institution, the System and the taxpayers.

By holding to these broad guidelines for assistance, the Assistance Board's actions will save taxpayers and the System hundreds of millions of dollars over the next 15 years.

The investment community is watching the System's actions. The System has over \$50 billion in debt outstanding, at an annual interest cost of \$5 billion. The passage of the Agricultural Credit Act of 1987, combined with the efforts of all concerned to implement the Act as quickly and efficiently as possible, has resulted in increased investor confidence. This is reflected in the narrowing spread between System bonds and Treasury obligations of comparable maturities (20 basis points as of 11/2). (FIGURES 5 & 6) The System's total debt has benefitted from the narrowed spreads, which has saved the System several hundred million dollars in the next few years. This, in turn, should reduce significantly the amount of federal assistance the System will require in the future.

Note the uniform low rates paid on deposits by agricultural banks during the first quarter of 1988, which compare unfavorably to the current rate of annualized funding cost for System institutions. (FIGURE 7)

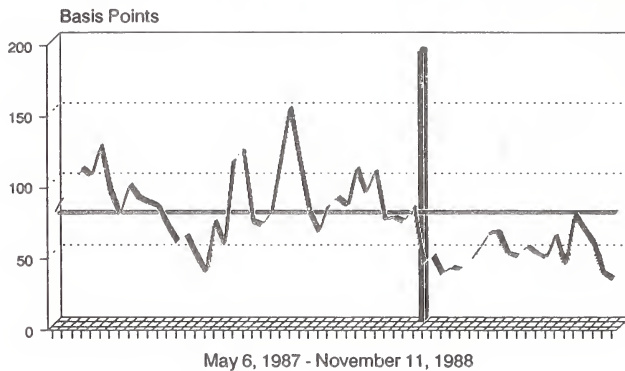
I am confident that the Farm Credit System will succeed in its financial recovery and will continue to be a leader in agricultural lending. The mechanism provided under the law is working, and the System institutions are working individually and collectively to make their System an effective, responsive lender.

By enacting the Agricultural Credit Act of 1987 the Congress reinforced the notion that a strong, vital system for delivery of agricultural credit at reasonable rates and terms was essential for a stronger rural America. The Farm Credit System is the Nation's only lender designed solely for this purpose. It fills a special role in preserving the rural fabric of our Country.

But I also believe there is room for healthy competition in agriculture banking as the farm economy continues to recover. America's farmers and ranchers need it. The System and other agricultural banks can and should go forward together, sharing continued development of agricultural credit opportunities.

Thank you.

Yield Spread Between 6 Month Federal Farm Credit Bonds and T-Bills

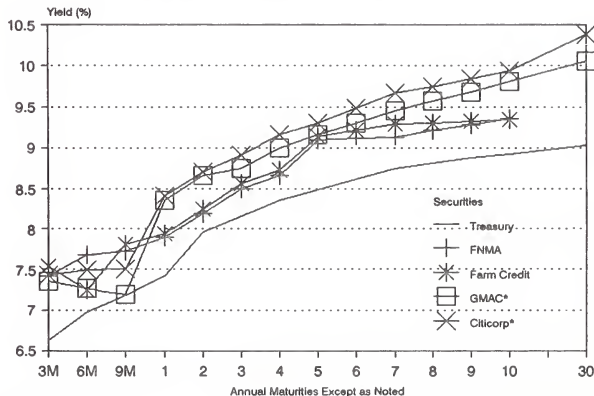


vertical line is 1/26/88 the day
the Assistance Board was chartered

FIGURE 5

YIELD CURVE COMPARISON

FRIDAY, JUNE 10, 1989



(* Commercial Paper)

FIGURE 6

Annualized Funding Cost For Agricultural Banks First Quarter 1988

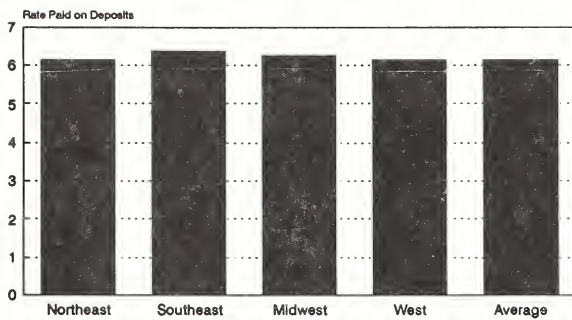


FIGURE 7



RESTRUCTURING FARMERS HOME ADMINISTRATION LOANS
Glenn "Jack" Hertzler, Jr.
Assistant Administrator for Farmer Programs
Farmers Home Administration (FmHA)

The Farmers Home Administration has become a major supplier of agricultural credit. The Agency now provides nearly 25% of the nations operating credit and in some States we are providing over 50% of the operating credit. All of that credit is very high risk which requires very intensive supervision and frequent restructuring to minimize losses.

The Farmers Home Administration (FmHA), not unlike other agriculture lenders, has been restructuring loans for a good many years. This is a topic of interest at this time because of the requirements of the Agricultural Credit Act of 1987 and the fact that FmHA has accumulated 83,000 seriously delinquent accounts.

The Agricultural Credit Act of 1987 sets forth a precise process for the Agency to follow and requires restructuring of a borrowers debt when restructuring will provide a greater return to the Government than would be received in an involuntary liquidation. In addition, the Congress has very clearly set forth a public policy that requires FmHA to keep every FmHA farmer borrower on the farm that it possibly can.

To ensure that public policy will be carried out, a specific set of borrower's rights has been set forth by the Congress. These borrower rights provide a number of opportunities for borrowers in serious financial difficulty to have the debt written down in order to retain the farming business. These opportunities include the traditional rescheduling, reamortization and deferrals. The legislation adds debt write down, buyout at net recovery value and revises the provisions for leaseback/buyback and homestead protection which were included in the 1985 Farm Bill.

Let's examine each of these opportunities.

Rescheduling and/or Reamortization

Operating type loans can be rescheduled for up to 15 years with no limit on the number of times a loan can be rescheduled. Reamortization is for long term loans with reamortization of payments for up to 40 years from the date of the original loan. In addition, these loans can have interest rates reduced to limited resource rates which are 3 percent below regular rates.

Deferral

Deferrals can be up to 5 years with renewals possible. Interest accrues on deferred debt so it is not a very viable choice for a borrower unless a substantial amount of other lender debt can be paid off or income increased during the deferral period. Farm plans must show that payments on the deferred debt can be resumed at the end of the deferment period. Softwood timber is a new program that came out of the 1985 Farm Bill. It is a 45 year deferment of loan payments on land where softwood timber can be planted and harvested. The theory is that the harvested timber will pay off the deferred debt and accrued interest. There have been 5 softwood timber loans approved.

Debt Write Down

Debt write down is the major loan restructuring provision of the Agricultural Credit Act of 1987. The Act requires a determination be made as to whether the return to the Government would be equal or greater with the debt written down to net recovery value and keeping a farmer in business as compared to what would be received from foreclosure and liquidation. The key words in this process are "net recovery." "Net recovery" from an involuntary liquidation must be determined. Net recovery value is the market value less all costs of an involuntary liquidation. These costs include but are not limited to legal costs, prior liens, taxes, caretakers fees, sales costs and interest costs. The Act authorizes and requires debt to be written down to an amount that will provide cash flow. If the farm operation will cash flow at or above net recovery value, the debt will be restructured, thereby keeping the farmer on the farm.

Buy Out at Net Recovery Value

If all combinations of rescheduling, reamortization, deferral or write down do not provide a restructuring program that will keep the borrower paying the restructured debt, the borrower then has an opportunity to pay off the debt at net recovery value. As you can see, this can be a heavily discounted payoff.

The payoff must be payment in full to FmHA with no credit being provided by the Agency. There is a high probability that many borrowers whose loans cannot be restructured, will be able to pay off their loans at a few cents on the dollar. This will, as intended by Congress, keep the borrower on the farm, debt free as far as FmHA is concerned, with a good opportunity to continue the farm business.

Leaseback/Buyback

Leaseback/Buyback is a transaction whereby the borrower conveys the property to the Agency in satisfaction of the debt, and then leases the property back with an option to buy. The option must be exercised in 5 years or the property goes on the market. The Act requires that FmHA try to enter into a contract with the farmer wherein FmHA would assure the borrower that, upon conveyance, the Agency will lease or sell the property back to the borrower. Such sales may be made with FmHA providing the credit.

Homestead Protection

Homestead protection is considered last in the hierarchy of opportunities but it is probably the least costly method available to a farmer. FmHA is required to survey and establish a homestead. The homestead can consist of the home, outbuildings, and not more than 10 acres of land. This homestead is leased to the borrower at a rental rate comparable to rental rates for the area. The lease is up to 5 years and also carries an option to purchase. As stated in the previous paragraph, FmHA can provide the credit to eligible applicants in both buyback and homestead protection purchases.

Mediation

FmHA is required to participate in mediation in States that have USDA certified mediation programs. To date, 14 States have certified mediation. In those States without certified mediation, the Agency is required to attempt to get a meeting with undersecured creditors, for the purpose of attempting to get other lenders to make adjustments that would enable the farmer to continue to farm.

As you can see, borrowers in financial difficulty have many opportunities to stay on the farm. The Agency has advised 83,000 borrowers, whose accounts are from 180 days to more than 4 years behind schedule, of these new opportunities. The farmers have 45 days after receiving the information, to request consideration. Upon receipt of a request, FmHA has 60 days to process the application. The borrower then has 45 days to accept the restructuring proposal or appeal the Agencies decision.

Restructuring is a very complicated and complex process. Appraisals of all security property will be required. The mathematics of the restructuring will be done by computer so that all possible combinations of rates and terms can be considered. The dollar amount of debt to be written off will be substantial. The Agency projects somewhere in the vicinity of \$9 billion.

FmHA LOAN SERVICING POLICY

The following policy statement has been published in the regulations. Any Farmer Program borrower may request Primary or Preservation Loan Service Programs. However, borrowers must be unable to pay their debt as scheduled before FmHA will use Primary or Preservation Loan Service Programs and must be behind on payments in order to be considered for write down, buyout at net recovery value or the Preservation Loan Service Programs. The County Supervisor will use an FmHA computer program (DALR\$) to assist in identifying, combining, and documenting the loan service programs that will keep the farmer on the farm and provide the best net recovery to the Government. Servicing is a continuing process, not a single event. It begins the day a farmer comes into the FmHA supervised credit program. Servicing has two objectives: (1) to help the farmers manage credit so they can return to private sector credit sources, and (2) to minimize costs to the

Government of providing another opportunity to farmers in financial difficulty. Borrowers' accounts must be managed with an overall objective of keeping the farmer in business and at the same time, minimizing loan costs and losses. The tools are rescheduling and/or reamortization, lower interest rates, deferments, and write down of debt and, when all else fails, buyout at net recovery value, leaseback/buyback and homestead protection are available. FmHA can also use Conservation Easement and Softwood Timber Programs where and when applicable. To establish an effective servicing policy, it is necessary to include the borrower whose loan payments with FmHA are current. This can be called Phase I.

PHASE I

FmHA's servicing objective is to keep the borrower in business, paying at regular rates and on regular terms with graduation being the primary objective. The servicing tools available to keep a borrower in Phase I are rescheduling and/or reamortization. These tools must be used before an account gets behind schedule, if possible. In order for servicing to be effective, all farmer program loans must be reviewed annually, prior to the date the annual payments are due. This is necessary in order to determine what, if any, servicing action needs to be taken to keep an account from becoming delinquent.

When it becomes evident that FmHA cannot keep a borrower in business, paying regular rates and after having extended terms to the maximum extent allowable, the borrower is considered to be in Phase II where FmHA has more debt management tools available.

PHASE II

These additional tools are lower interest rates and deferrals. The objective is still the same, keep the borrower farming and minimize loan costs and losses to the Government. Depending upon the reasons the borrower entered Phase II, it is reasonable to expect, with proper servicing, along with normal production and marketing conditions, recovery and return to Phase I. However, some borrowers may stay in Phase II as long as they are indebted to FmHA. Here again, servicing should be used to prudently avoid delinquency rather than try to remove it.

When it becomes impossible to keep an account from being delinquent and such delinquency exists for 180 days, the borrower is considered in Phase III.

PHASE III

The borrower must be provided the Notice of Availability of Primary and Preservation Loan Service Programs for Delinquent Farmer Program borrowers. This phase begins the complicated process of determining if keeping the farmer on the farm will provide the best net recovery to the Government or whether liquidation offers the best net recovery.

FmHA's primary servicing tools in this phase include consolidation, rescheduling, reamortization, deferral, softwood timber loans, conservation easements, and write-down of a borrower's debt.

The procedure, at this point, requires an appraisal of all collateral and a sound and accurate determination as to whether or not the best net recovery to the Government exists in write down of debt and continuation of the farming operation, or in liquidation of the collateral securing the FmHA debt. The debt must be written down to a level at which a feasible plan can be developed. The write-down can go down to an amount that will provide a return to the Government equal to net recovery from an involuntary liquidation. FmHA will continue with the borrower if net recovery from loan payments on the restructured debt equals or exceeds net recovery from liquidation. Once it has been determined that a borrower cannot be helped with Primary Loan Service Programs, every effort must be made to keep the farmer in business, using mediation if necessary and available, in an attempt to get other creditors to restructure their debt if that is what is needed to develop a feasible plan.

If it is determined that FmHA cannot restructure the borrower's debt, the borrower is considered in Phase IV.

PHASE IV

A Notice of Intent to Accelerate will be sent to the borrower. This Notice will advise the borrower of the right to: 1) a meeting with FmHA, 2) an appeal, 3) request an independent appraisal and 4) buy out the FmHA debt at net recovery value. If none of the rights offered in the Notice of Intent to Accelerate provide a favorable solution, and the borrower does not buy out at net recovery value, FmHA will automatically consider the borrower/owner for the Preservation Loan Service Programs.

If the borrower/owner is eligible for the Preservation Loan Service Programs, FmHA expects to enter into a contract with the borrower wherein FmHA determines the borrower will receive a leaseback/buyback and/or homestead protection upon conveyance of the real estate and chattels securing the debt. It is expected that the transaction of conveyance from the borrower(s) and reconveyance by FmHA to the borrower(s) take place at one sitting, similar to a loan closing. This means that all documents necessary to complete this transaction must be prepared in advance and be ready for appropriate signature.

When a borrower's debts cannot be restructured or Preservation Loan Service Programs cannot be used by the borrower/owner, foreclosure and liquidation is required. Both before and after acceleration, the borrower can sell the property for market value or voluntarily convey to FmHA. If FmHA takes the property into inventory, the farmer is now considered in Phase V.

PHASE V

The borrower has the opportunity, along with spouse and children to once again be considered for the Preservation Loan Service Programs. The farmer also may elect to use the homestead protection program rather than leaseback/buyback which also can provide a base for farming operations.

Leaseback/buyback rights are available in Phase V to spouse and children. Homestead rights are available to only the former owner.

In summary, the loan restructuring policy is this:

- (1) Use rescheduling and/or reamortization at regular interest rates to keep a borrower in Phase I if at all possible. If that is not possible, go to Phase II.
- (2) In Phase II, use rescheduling and/or reamortization at limited resource interest rates and consider deferral, including softwood timber loans, if necessary, to keep a borrower from becoming delinquent. When a borrower's loans cannot be restructured using any or all combinations of consolidation, rescheduling, reamortization, deferral, and softwood timber programs where applicable, and with limited resource rates, begin Phase III.

(3) In Phase III, FmHA must determine whether or not the best net recovery to the Government is by keeping the farmer on the farm by using the Primary and Preservation Loan Service Programs, or through liquidation. At this point, the borrower is considered for a debt write-down. The value of the restructured debt will be based on the present value of payments the borrower would make to the FmHA using any combination of Primary Loan Service Programs that will provide a feasible plan. Present value is a calculation concept which assigns a lower current value to dollars received in later years than to dollars received at the present time using a specific discount rate. FmHA will use a discount rate based on the 90-day Treasury bill rate. FmHA will analyze the costs of involuntary liquidation to determine the net recovery value of the collateral securing the debt as if it was involuntarily acquired and disposed of under the normal FmHA inventory property disposal process. The County Supervisor will determine the current market value of the collateral. If the calculations show that the value of the restructured debt is greater than or equal to the net recovery value of the collateral, FmHA will restructure the debt. The Phase III process may include mediation if an approved State Mediation Program is available. When an approved State Mediation Program is not available, an effort must be made by FmHA to get undersecured creditors and the borrower together when the other creditors' debt is the reason a feasible plan cannot be developed. If undersecured creditors agree to restructure debts owed to them, so that the borrower can develop a feasible plan of operation, FmHA will restructure the borrowers debt to FmHA. If undersecured creditors will not participate in negotiations or will not restructure debts, FmHA will proceed with appropriate action to liquidate the borrowers' accounts. The borrower has the opportunity to retain the security property by paying FmHA the net recovery value, appeal, meet with the decisionmaker and/or request an independent appraisal. Credit will not be provided by FmHA for buyout at net recovery.

(4) When all or any combination of Phase III servicing tools have been fully and carefully considered and it is determined that the best net recovery to the Government is in liquidation, the borrower will be considered in Phase IV which is the beginning of the liquidation process.

FmHA will automatically consider the Preservation Servicing Program application in this phase. Both before and after acceleration, the borrower can apply for debt settlement when conveying the property, either by sale at market value or voluntary conveyance to FmHA.

(5) After acceleration of the accounts and upon acquisition of the security property by FmHA, the borrower is considered in Phase V. This last phase is when the property securing the loans passes into FmHA inventory. In this phase, once again, Preservation Loan Service Programs will be offered to the borrower. The objective is to try to keep the farmer on the farm. The borrower/owner's spouse and/or children are now considered in the priority for leaseback/buyback. This will be done with the Leaseback/Buyback Program for the farm or through the Homestead Protection Program for the home and 10 acres. The borrower/owner's spouse and/or children are not eligible for homestead protection.

The FmHA Primary Loan Service Program has the potential to keep many farmers on the farm, contributing to the economic viability of rural communities. The Farmers Home Administration will carry out this program in the full intent and spirit of the Act. Only time will tell how many FmHA borrowers will be able to continue with their farming business, but many rural communities will see a strengthening of their economy as the restructuring process takes place.

Attachments

Aging of Farmer Program DELINQUENT AMOUNTS *

RC 616, September 30, 1988

Insured Loans

PROGRAM	AMOUNT DELINQUENT (\$1000)	Percent of Total AMOUNT DELINQUENT By Length of Delinquency			
		1 Year or Less	1-2 Years	2-3 Years	3 or More Years
Farm Ownership	\$609,184	5.6%	9.0%	11.7%	73.7%
Farm Operating	\$1,439,725	5.4%	12.0%	15.2%	67.4%
Emergency	\$4,801,549	1.3%	2.7%	4.0%	92.0%
Economic Emergency	\$1,408,611	1.9%	3.4%	8.5%	86.2%
Soil and Water	\$52,615	3.8%	7.5%	10.3%	78.4%
All Others	\$10,010	3.2%	4.4%	6.2%	86.2%
TOTALS	\$8,321,694	2.4%	4.9%	7.3%	85.3%

* Excludes Association Loans

Prepared by the Information Resources Management Division
based on Report RC 616, 9/30/88

September 1987 - September 1988

A M O U N T S

Insured Principal			Amount Delinquent		
1988	\$25.36	Billion	1988	\$8.33	Billion
1987	\$26.07	Billion	1987	\$6.60	Billion

B O R R O W E R S

Program Delinquency Rates			Number of Delinquent Borrowers		
	September 1987	September 1988		September 1987	September 1988
FD	23	25	FD	26,680	27,869
OL	33	38	OL	36,210	41,476
EM	39	44	EM	40,297	43,080
EE	45	50	EE	19,483	20,481

Prepared by the Information Resources Management Division
based on Report RC 616, 9/30/88

DELINQUENT BORROWERS							
State	Total Caseload as of 10-03-88	SAGAR 12-31-87 Number Filed for Bankruptcy	No. Borrowers notified of "Right to Request Inc. Release"	Calculated Residual Number of * OTHER Borrowers	RC541 Number of Delinquent Borrowers NOT Accelerated	Potential Workload under New Regulations	Workload as % of Total Caseload
ALABAMA	4584	226	198	-12	739	1151	25.1%
ARIZONA	989	34	103	91	227	455	46.0%
ARKANSAS	9115	255	516	185	2102	3058	33.5%
CALIFORNIA	3352	253	273	44	1119	1689	50.4%
COLORADO	2266	98	62	219	625	1004	44.3%
CONNECTICUT	240	4	7	4	38	53	22.1%
DELAWARE	290	4	12	11	24	51	17.6%
FLORIDA	2706	111	255	556	678	1600	59.1%
GEORGIA	6950	671	841	718	1938	4168	60.0%
IDAHO	3984	250	247	105	1191	1793	45.0%
ILLINOIS	8369	304	292	31	1413	2040	24.4%
INDIANA	5493	441	400	508	1088	2437	44.4%
IOWA	12818	508	372	647	1528	3055	23.8%
KANSAS	7103	410	205	268	1024	1907	26.8%
KENTUCKY	8046	315	273	36	1300	1924	23.9%
LOUISIANA	7659	403	1211	804	2002	4420	57.7%
MAINE	1735	11	26	93	444	574	33.1%
MARYLAND	993	23	24	118	191	356	35.9%
MASSACHUSETTS	389	3	10	20	26	59	15.2%
MICHIGAN	4541	207	81	158	1331	1777	39.1%
MINNESOTA	9542	398	411	141	2974	3924	41.1%
MISSISSIPPI	10506	343	1056	817	2667	4883	46.5%
MISSOURI	10187	538	253	481	1994	3266	32.1%
MONTANA	3592	89	67	75	997	1228	34.2%
NEBRASKA	8375	518	563	65	1130	2276	27.2%
NEW HAMPSHIRE	118	0	0	1	8	9	7.6%
NEW JERSEY	628	17	53	78	112	260	41.4%
NEW MEXICO	1346	16	77	72	249	414	30.8%
NEW YORK	5081	349	133	121	1176	1779	35.0%
NORTH CAROLINA	7270	170	483	611	1232	2496	34.3%
NORTH DAKOTA	8387	175	470	150	2095	2890	34.5%
OHIO	3801	272	243	311	610	1436	37.8%
OKLAHOMA	9040	401	172	414	2514	3501	38.7%
OREGON	2137	60	90	156	434	740	34.6%
PENNSYLVANIA	2690	81	102	93	284	560	20.8%
RHODE ISLAND	49	0	2	1	7	10	20.4%
SOUTH CAROLINA	3392	79	391	150	621	1241	36.6%
SOUTH DAKOTA	10276	593	475	178	1887	3133	30.5%
TENNESSEE	7616	327	375	76	1975	2753	36.1%
TEXAS	14372	499	444	1977	3601	6521	45.4%
UTAH / NV	1514	37	17	45	271	370	24.4%
VERMONT	709	5	4	9	35	53	7.5%
VIRGINIA	3631	199	216	151	740	1306	36.0%
WASHINGTON	2303	95	105	-55	667	812	35.3%
WEST VIRGINIA	1593	37	19	3	254	313	19.6%
WISCONSIN	8132	222	181	544	1485	2432	29.9%
WYOMING	878	51	45	36	146	278	31.7%
ALASKA	11	0	0	1	3	4	36.4%
HAWAII	348	2	0	7	104	113	32.5%
W.P.TERR.	20	0	0	0	9	9	45.0%
PUERTO RICO	2642	41	114	37	691	883	33.4%
VIRGIN ISLANDS	27	0	1	0	15	16	59.3%
NATIONAL TOTALS	231835	10145	11970	11350	50015	83480	36.0%

* The "OTHER" column is calculated by subtracting the number of borrowers notified of "Right to Request Income Release" and the "Number Filed for Bankruptcy" from the number of OTHER borrowers listed on RC 541. A negative number prevents a borrower from being counted twice by this estimate.

**ANNUAL AGRICULTURAL OUTLOOK CONFERENCE**

United States Department of Agriculture
Washington, D.C.

Outlook '89, Session #33

For Release Thursday, December 1, 1988

Status of Trade Negotiations and Trade Issues

Ambassador Clayton Yeutter
United States Trade Representative

I am pleased to join you for the 65th USDA Annual Outlook Conference. It's good to see so many friends, including my colleague Dick Lyng. Secretary Lyng and I have worked side-by-side during the last several years to negotiate the removal of trade barriers to American farm products. Our farmers, ranchers, and processors -- everyone involved in food production -- are fortunate to have had him leading the U.S. Department of Agriculture over the past three years.

Not long ago, I remember hearing the story of a farmer who won a million dollars in the lottery. He was asked what he planned to do with the money, and he said, "I'm just going to keep farming until it's all gone."

Well, American farmers have weathered some hard times. But thanks to the efforts of Secretary Lyng, and to the leadership of President Reagan, the outlook for American agriculture is better than it's been in a long time.

Here in Washington, we hear a constant debate over what's needed to help our nation's industries compete.

Ladies and gentlemen, you know how to compete. Few advances in modern technology can match the miracle of American agriculture. In 1820, a farmer in this country produced barely enough food to feed his family of four. Today, the average farmer coaxes from the land enough food for 75 people.

Farmers, I suspect, understand better than most of the nation just what the global economy means to America -- to each of us, every day. Its impact is made clear by the price you receive for a bushel of wheat, a bale of cotton, or a crate of oranges.

Still, government has a responsibility to do everything it can to assure that farmers have every possible opportunity to compete. Secretary Lyng and I have worked together with President Reagan and President-elect Bush over the past three years to do just that.

In fact, it was just over three years ago that President Reagan announced his tough, new trade policy -- a policy that has had a substantial role in the improvements that have occurred in the economic outlook for agriculture since then.

The President's trade policy has three parts. First, he said we would challenge the unfair trading practices of our trading partners more aggressively than any other Administration in history, using the President's broad authority under Section 301 of the trade law. Since then, we have used Section 301 26 times, and we have had tremendous success in prying open other nations' markets for U.S. exports.

A great many of those cases were in agriculture: We increased market access in Europe for citrus, almonds, canned fruit and corn; in Japan for leather, tobacco, citrus, beef and processed agricultural products; in Korea for tobacco and beef, and in India for almonds, among many others.

Second, the President set out to improve the fundamental economic conditions that govern trade patterns. We've worked with our leading trading partners to coordinate economic policies and ensure more reasonable and stable exchange rates. The result has been that U.S. exports are much more competitively priced on the world market than they have been in years, and agricultural commodities, which are among the most price-sensitive of all traded goods, have been among the major beneficiaries.

And third, we have worked to expand trading opportunities through bilateral and multilateral trade agreements. The most important bilateral agreement is the U.S.-Canada Free Trade Agreement, which will be implemented January 1 if the Canadian Parliament approves it, as it undoubtedly will following Prime Minister Mulroney's re-election. Tariffs will be phased out over ten years, and many other trade distortions in the agriculture sector will be eliminated. However, the most serious problems facing world trade in agriculture can only be solved multilaterally.

That is why the U.S. has been the driving force in the world pushing a major reform of the General Agreement on Tariffs and Trade (GATT) in the Uruguay Round. This effort is absolutely critical to U.S. agriculture, so I will return to this subject in some detail later.

The President's three-point trade strategy has been a clear success. Exports are surging. In the first nine months of 1988, overseas sales by U.S. firms jumped 29 percent over the same period last year. Our farm trade surplus more than doubled, thanks almost entirely to exports. In the fiscal year that ended October 1, U.S. shipments of agricultural products totaled \$35.2 billion -- a four-year high.

The trade deficit is 19 percent lower than it was during the same period last year. It's now falling at an annual rate of \$30 billion. Progress in real terms has been even more dramatic. Adjusted for inflation and exchange rates, America's merchandise trade deficit has plunged 40 percent since the third quarter of 1986.

The trade deficit turnaround could not have taken place at a more fortuitous time. We have completed six full years of economic expansion, the longest peacetime expansion in history. The trade correction is giving our economy a significant boost at a time when many had expected it to run out of steam. The improvement in the real trade deficit has contributed one full percentage point to GNP growth since the third quarter of 1986. In the second quarter of 1988 alone, an improved real trade balance accounted for about half of the economy's 3.0 percent growth.

Still, the most serious problems facing world agriculture remain. The final element of our strategy to increase agricultural exports is to strengthen the international trade system, particularly as it relates to trade in agriculture. Current GATT rules are inadequate and agricultural trade is in disarray. We desperately need major changes in agricultural policies everywhere to save not only American farmers, taxpayers and consumers, but farmers, taxpayers, and consumers everywhere.

In many countries, import restrictions and price supports keep internal agricultural prices high, thereby stimulating overproduction. When surpluses occur, export subsidies are used to unload them on the world market, thus undercutting the ability of farmers in other nations to make a living. Any country that fails to join the folly loses market share. And poor countries that cannot afford to participate are denied any realistic hope of agricultural development.

Almost every government maintains distortive agriculture programs of one kind or another. Our European colleagues have said repeatedly that there are no angels in agriculture trade. We agree. The question is how do we get closer to heaven?

Some of us have tried periodically to move toward reform on our own only to see our market share deteriorate. The U.S., for example, has taken more than 60 million acres of land out of production in recent years and we've also reduced target prices. The EC has adopted a "conservation reserve" of its own, though on a much smaller scale of two or three million acres. The Community's 1988 budget disciplines are also a step in the right direction. Though the disciplines are modest, they nonetheless constitute a substantial political achievement. The Community has at least slowed the trend toward ever-larger government involvement in European agriculture.

These have been difficult steps for both the EC and the U.S. The reason they are so difficult is that political leaders understandably hesitate to forgo a perceived economic advantage unless others are prepared to do the same. Unilateral disarmament is no more attractive commercially than it is militarily. That is why we must attack agricultural distortions multilaterally. We must find solutions that all can embrace -- solutions that give no one an unfair advantage over his competitors.

Should we be motivated to find such solutions? We certainly should. A recent study by the Centre for International Economics in Canberra shows that there are immense benefits to be had by all if we can solve this global problem. According to that study, agricultural liberalization would create 3 million additional jobs throughout the European Community, provide a 2.5 percent increase in the average real wage per Japanese worker, provide a \$26 billion annual increase in real income for developing countries, and reduce the U.S. budget deficit by \$37 billion. Isn't that worth doing?

The appalling situation in agriculture has been created by governments and governments must solve it. All major trading nations share in the blame, and all must share in the solution. The proper forum for trying to put an end to this madness is the Uruguay Round.

I must remind you that there were many who doubted that Punta del Este would succeed in launching the new round, largely because they doubted that we would be able to reach agreement on the major reform of world agricultural trade that we were seeking. Yet that meeting produced the most comprehensive and ambitious negotiating agenda in the history of the GATT. Among the most important items on that agenda was the commitment to negotiate long-term reform in agriculture. But we are still in a fierce debate over how far and how fast reform will take place -- a question that must be addressed when the GATT trade ministers meet in Montreal for the Midterm Review of the Uruguay Round next week.

The U.S. believes that the fundamental objective of the Uruguay Round agriculture negotiation should be to eliminate all trade distorting agricultural policies as quickly as possible.

On July 6, 1987, President Reagan announced our proposal to phase out all government practices that distort agricultural trade by the year 2000. Included in our proposal are all export subsidies, import barriers and domestic subsidies that affect trade. We exclude bona fide food aid programs and income supports that do not affect pricing or production decisions -- key elements of our proposal that its critics conveniently ignore. Finally, we are pressing for uniform health and sanitary regulations so that these measures are not used as non-tariff barriers.

Our proposal was quite well received, particularly by the major agricultural exporting countries that do not rely heavily on subsidies and by many less developed countries, particularly those that are food exporters or would like to be, but cannot break into the world market in competition with developed-country subsidies.

Some other countries have raised questions and objections and submitted their own proposals. That is okay with us. After all, that is what a negotiation is all about. And we have tried to be responsive to legitimate concerns about our proposals.

For example, some developing countries have argued that their lack of advancement requires some special considerations. So, we tabled a paper in Geneva responding to their concerns. We said that we would be willing to consider a longer phase-out period for trade distortive policies and an exemption for subsidies to develop their agricultural infrastructure.

Japan and others who are food importers have expressed their fear that they would not be able to maintain "food security" in a free-trade environment. So we tabled a paper on food security in Geneva in which we indicated we would be willing to consider GATT rules on export embargoes of basic foodstuffs and other creative ways to respond to this concern. But that does not mean we will retreat from efforts to eliminate barriers that limit what our farmers can sell abroad. There are many ways to guarantee food security aside from market access barriers.

Some -- particularly the members of the Cairns Group of agricultural exporting countries -- have proposed immediate, short-term steps to begin the process of dismantling international trade-distorting policies. That's fine with us. In fact, we tabled in Geneva a paper proposing an immediate freeze on export subsidies, domestic subsidies and market barriers, but only if it is accompanied by a firm commitment to long-term agricultural reform.

Still others -- including the European Community -- have said that our 10-year timetable is unrealistic. So we have indicated our willingness to be flexible on this point, as well. President Reagan, in a major address two weeks ago, called on our trading partners to endorse our plan for long-term reform. The President specifically addressed the concerns of the Europeans on timing. He said, we'll be "flexible about timetables, so long as everyone agrees on nailing down an adjustment plan with specific dates for ending trade-distorting subsidies and market access barriers."

In short, we are more than willing to be flexible. But the United States will take only those actions -- short or long term -- that are also taken by our trading partners, and we will take no short-term action of any kind unless we achieve in Montreal a satisfactory commitment to long-term reform.

Even with all of our willingness to be flexible, there are some who say that we are the ones who are being unreasonable. They say governments cannot and should not get completely out of agriculture. But those critics know that this is not what we have proposed. We have never suggested that governments get completely out of agriculture. We simply want governments to stop distorting trade. And to stop stimulating excess production which no one wants to buy! That can be done, and farmers can still be helped in a myriad of ways, if governments will just follow sensible policies when they assist farmers.

The economic case for reform can hardly be more compelling; the resistance is political. One can only hope that taxpayers and consumers will indignantly ask their political leaders why it is they wish to continue to distort the marketplace forever. How can one possibly defend the present state of affairs to the developing countries of the world, who suffer the most from these distortions?

What must come from the Midterm Review in Montreal next week is the determination and the momentum needed to push these negotiations toward a successful conclusion two years from now. If that is achieved, the Midterm Review will have fulfilled its objective. If the world's trade ministers lack the political will to move forward with issues that two years ago we agreed were critical to the continuing health of the world trading system, one must question whether the Uruguay Round is destined to fulfill its bright promise.

We are particularly committed to achieving progress in the three areas which will be most difficult in Montreal: agriculture, services and intellectual property. We will do everything we can to ensure that meaningful agreements can be reached in each of these areas by the end of the Round in 1990. If that means not agreeing to weak, watered-down language in Montreal, then we will not agree.

We will be willing to leave Montreal without agreed language in any or all 15 negotiating groups if we must. Obviously, that would not be our preferred outcome. My fellow trade ministers and I should be prepared to make strong commitments in each of these areas to move the negotiations forward. But if agreement comes at the price of sacrificing basic principles, we will not pay that price.

If ministers do not reach consensus in all 15 negotiating groups, some may conclude that the Midterm Review has been a failure. I would not be so quick to draw that conclusion. In fact, it will not really be possible to judge the success of the Midterm Review until 1990, when the Round is concluded. After all, the real measure of success will be, did the Midterm Review move the process forward toward a successful conclusion? Perhaps in some areas, a failure to agree would be more helpful than a weak commitment. We will not really know until the conclusion of the Round.

But in the end, if our trading partners continue to defend policies that are indefensible, if their negotiators turn away from the fundamental principles needed to discipline world trade in agriculture, then the dreams of Punta del Este will come to dust. Nations everywhere will have let a rare opportunity slip away, and the wasteful policies that lift money from the pockets of consumers and taxpayers everywhere will linger into the next century.

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ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

United States Department of Agriculture
Washington, D.C.

Outlook '89, Session #33

For Release: Thursday, December 1, 1988

STATUS OF TRADE NEGOTIATIONS AND TRADE ISSUES: QUESTION PERIOD*

Honorable Clayton Yeutter
U.S. Trade Representative

AMBASSADOR YEUTTER: We've got about five to ten minutes for questions. Let me take them directly from here.

QUESTION: Is the long-term grain agreement based on prevailing world market prices or U.S. market prices?

AMBASSADOR YEUTTER: I'll let Secretary Lyng answer that.

SECRETARY LYNG: You're the U.S. trade representative.

The long-term grain agreement, as I understand it, does not have prices in it at all. It is an agreement that the Soviets will purchase minimum quantities and maximum quantities, without consultation, of corn, wheat, soybeans, soybean oil, that sort of thing. There are no prices in that agreement whatsoever.

AMBASSADOR YEUTTER: That's correct. The fundamental provisions are as they have been for a good number of years.

QUESTION: Isn't the United States liable to find itself entirely alone up in Montreal if, as the EEC claims, the Cairns Group is backing off this need for a total elimination of subsidies and is now supporting a reduction? Don't you think that by sticking to the U.S. position, we're liable to find ourselves alone and stalemated?

AMBASSADOR YEUTTER: Sometimes it's better to be alone than to be cavorting with an undesirable crowd.

SECRETARY LYNG: Clayton, let me moderate that as a moderator should.

There is absolutely no chance that we're going to be all alone in Montreal; we've got widespread support for the proposal that we made. Sure, it goes all the way; it's idealistic. And it's hard for some people to see how you can make -- even over a period of years -- the changes, but we'll have lots of support for the goals that we've enunciated.

AMBASSADOR YEUTTER: That's right. Our European Community friends have been indicating that they feel the United States is isolated on that issue. I believe it's more accurate to assert that they are isolated on this issue.

QUESTION: Just a little different subject. Do you think you're going to be able to stop the EEC from going ahead with the hormone ban on January 1?

*Based on a transcript.

AMBASSADOR YEUTTER: Well, that's a question which is better posed to our EEC counterparts, of course. We certainly hope that the Community will find a mechanism for rationalizing postponement of that ban because we believe it's unjustifiable. And unless a rationale for postponement can be found, we certainly will take countermeasures immediately. The decision was made well over a year ago, when the ban was first proposed, that is, when implementation was delayed from January 1, 1988 to January 1, 1989. There is just as persuasive a rationale for postponement now as there was a year ago. We hope our Community friends will recognize that.

QUESTION: Mr. Yeutter, has the Canadian election outcome improved the atmosphere for Montreal? And if so, how?

AMBASSADOR YEUTTER: Yes. In my judgment, the results in Canada are a very positive element in the Uruguay Round. This is true not only with respect to the Montreal meeting, which should be obvious -- since it has come in the immediate aftermath of the Canadian election, but also for the final two years of the Uruguay Round as well.

Now, the reason for that is that there is some specific provisions of the Canada agreement that ought to provide examples for the Uruguay Round -- perhaps not precise examples, but, without a doubt, conceptual examples. Services is one of those. And as I indicated, services will be a contentious issue in Montreal and elsewhere. But there are a number of others as well, including investment.

So the result in Canada is assuredly heartwarming, and we've already sent our congratulatory messages to Prime Minister Mulroney and to Minister Crosbie, in my case. They've made a fine contribution to the cause of more open world trade.

QUESTION: Ambassador Yeutter, can you elaborate on what the Wall Street Journal called yesterday your threat to walk out of the Montreal meetings if other countries are deemed uncooperative?

AMBASSADOR YEUTTER: Well, all I really said there, Dave, was that we're not prepared to paper over differences in Montreal simply to have a, quote, successful meeting, end quote. In other words, the easy way out for Secretary Lyng and myself, and the rest of us who are in Montreal next week, will be to somehow reach agreement on language, nebulous though it may be, in each of these 15 negotiating groups so that we can come back to Washington, D.C., and say we've had a marvelous meeting in Montreal. We can say there are 15 negotiating groups, and that we have 15 negotiating frameworks that will be implemented over the final two years of the negotiations.

I don't like taking the easy way out if it's not meaningful. And papering over major problems is not the way to go if we're to finish this negotiation on time. I would prefer to come back without an agreement on a negotiating framework if I believe that doing so will make a positive contribution to the final outcome of the negotiations. In other words, it may be that having a papered-over, nebulous, ambiguous piece of paper that everybody signs off on in Montreal will be counterproductive rather than helpful in terms of the final result of the negotiations.

In Montreal, we want to do whatever will be most helpful in advancing the negotiations. After all, we're in the middle of negotiations; we're not at the end. This isn't a question of finishing up the meeting in Montreal and going home and the negotiations are over. We have to do what we believe is most appropriate and most beneficial at the midpoint, and that may or may not be agreeing to a particular document.

QUESTION: Did you and the Japanese foreign minister discuss the matter of rice in your meeting this morning?

AMBASSADOR YEUTTER: We did not talk about the rice element of the Montreal meeting at all this morning. We were talking about the much bigger-picture issues in the short period of time that we had available. We do believe that Japan and the United States have common interests in a good number of subjects that will be discussed in Montreal, and I believe we have common interests in at least some dimensions of the agricultural issue. But there's no way to know, at this stage of the proceedings, exactly how Japan or the United States will handle a given issue in Montreal. That's going to be a very fluid situation for three days next week.

QUESTION: Mr. Ambassador, there are currently a couple of very specific trade issues between the U.S. and Canada. Do you expect to be able to resolve those without difficulty?

AMBASSADOR YEUTTER: Do I expect to resolve them in Montreal?

QUESTION: Without difficulty.

AMBASSADOR YEUTTER: Oh, without difficulty. One rarely resolves trade issues without difficulty, and I suspect we'll have our share of difficulty in dealing with those. We're talking about a couple of agricultural disputes with Canada. Maybe you even have in mind some of the forest products disputes. But whatever, there are some contentious issues bilaterally. We won't deal with those in Montreal; we're going to have our hands full with multilateral issues next week. The bilateral issues will have to take a back seat for a week. But we'll deal with them in a timely way, no matter what the country.

The fact that we have a free trade arrangement doesn't mean that we're going to resolve all the differences that we have with Canada, any more than it would with any other country. We'll always have bilateral disputes with Canada; we'll always have them with the European Community, Japan, and a lot of other countries as well. The task, of course, always is to try to resolve them in an amicable and skillful way, and we'll try to do that on those.

Let me take just one more question.

QUESTION: Mr. Ambassador, the issue of the Canadian and Australian wheat boards comes up an awful lot. In your mind, how tough is it going to be to revise the definition of subsidies with an eye toward getting some of those countries to even consider giving up their use of those boards? And what would the U.S. have to give up, in your mind, to get some progress on that?

AMBASSADOR YEUTTER: Well, there's no way to know what the trade-offs might be on wheat boards or anything else because this is a very complex negotiation.

Trade-offs are not likely to happen until 1990 or thereabouts. It's much too early to make any predictions on that subject. Suffice it to say that activities such as those conducted by wheat boards are on the table in Geneva, just as is everything else in agricultural policy that may have an impact or does have an impact on international trade. So they're a legitimate subject for discussion and debate in Montreal.

I would assume that my successor and Secretary Lyng's successor will find it appropriate to raise those issues over the next couple of years. And, clearly, if we achieve the objectives that we've outlined in these negotiations, there are going to have to be some changes in those and a lot of other programs in a lot of countries over time. We know that whether we're dealing with wheat boards or Section 22 quotas in the U.S., variable levies in the European Community, or rice restrictions in Japan, changes will not come easily. That's a given.

But that doesn't mean that changes should not come; they must come. What we need to do in the negotiations is agree on the changes and the timetable, and have it be a reasonable, rational outcome that everyone can defend and everyone can implement.

And I would just make one final point in that regard -- and this is one that Secretary Lyng and I made in Brussels last weekend -- and that is that change is going to happen in world agricultural trade, without any doubt. It's simply a question of whether it's going to happen traumatically in response to a crisis, or whether it's going to happen in a planned and systematic and methodical way. And it seems to us it makes a lot more sense to do the latter rather than the former. It may take more political courage and fortitude to engage in systematic reform than it does to simply respond to crisis, but it's certainly the more sensible way to proceed. I hope we can, some time between now and 1990, convince our negotiating partners of that.

Dick, I'm sorry I cut into your time a little bit. Thanks so much. Great to see you all, and thank you.

SECRETARY LYNG: Thank you very much, Clayton.

As he first started, he told you how much he enjoyed working with me. I must tell you that it's been a great experience for me over the years to have the opportunity to work with Clayton Yeutter. That's been particularly true in the last three years, where I've been Secretary of Agriculture and he's been the U.S. Trade Representative.

I honestly believe that the highlight of what has happened while I've been Secretary of Agriculture is this proposal that we have made in the GATT on agriculture, the things that Clayton just went over in detail. We've set the high plane, we staked out the high ground for the United States, and it will stand the test of time. We may not succeed in Montreal; we probably won't succeed very greatly. You don't wrap these things up quickly. I think we eventually will be successful. But however it turns out, the future discussions and negotiations, Clayton, will never be the same after what we've proposed in the GATT round.

I thank you for your participation this morning, and thank you a whole lot.

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FARM POLICY CHALLENGES FACING THE NEXT ADMINISTRATION*

Moderator: Richard E. Lyng, Secretary of Agriculture

Panelists: William G. Leshner, President, Leshner, Russell and Moos
Lynn Daft, Vice President, Abel, Daft & Early

SECRETARY LYNG: Now we come to an issue of false labeling or false advertising. In the program it says "Farm Policy Challenges Facing the Next Administration; speaker representing the President-elect, George Bush." If he or she is here, please come up.

I guess someone was anticipating that there would be someone named who could accomplish that. We have no one here representing the vice president. I'm not going to stake out a claim to that and I'm not sure either one of my friends here would. I asked Lynn Daft if he would; he chuckled a bit about that.

I think we'll do this a little differently than you might have contemplated. I'm going to introduce these fellows and then I'm going to come over and sit down. And the three of us are going to bat around some of these issues, not give long speeches. And then we'll throw the thing open to some questions that you can toss at any one of the three of us. I hope that you'll find that the satisfactory substitute for this enticing bit of phrasology in the program, which is not true. But it's not harmful either, I guess.

Dr. Lynn Daft is the vice president of Abel, Daft & Early, a consulting firm here in the Washington area. He's an old-timer in the Washington area, has been working here in a number of capacities going back to 1967. About then, I think, Lynn, is when you started work at the Department of Agriculture. He stayed here until 1974 and then had a year's experience at the Office of Management and Budget. I suspect he's never been the same since. He then sobered up and went to the Congressional Budget Office, where he worked for a couple of years, and then was with Schnittker Associates. The key job that he had that I recall very clearly was when he was agricultural advisor in the White House during the Carter Administration.

Dr. Daft is a graduate of Ohio State University, attended and got an advanced degree at the University of Massachusetts, and has his doctorate in agricultural economics from Michigan State University. He's the fellow on your far right.

Raise your hand, Lynn.

I've known Lynn Daft for a long time, but I don't know him as well as I know the next fellow that I'm going to introduce, Bill Leshner, because Bill Leshner was my partner in the consulting business we called Lyng and Leshner -- I

*Based on a transcript.

Insisted on my name being listed first -- when we each left the administration after the first Reagan term. We had a very successful and pleasant experience there, and I was really sorry to leave.

When it became apparent that my name was being mentioned to possibly become Secretary of Agriculture, I went in to see Bill and I said, "What do you think, Bill? If they ask me, what should I do?" And he said, "Well, Dick, if I were you, I'd take it." I said, "Well, I don't know, it's a pretty darn tough job, and there's a lot of problems in agriculture." And he said, "Don't worry about it; they wouldn't expect very much from you." He denies that he said that, but I've never forgotten it.

Bill was assistant secretary for economics during the first Reagan term. Prior to that, he was chief economist at the Senate Agriculture Committee. He'd been a legislative assistant to Sen. Lugar; and an assistant professor at Cornell University, where he got his doctorate. He actually was at Oregon State University, too, for a while; I know that. He served in the Army from 1970 to '72. Bill is a knowledgeable Indiana farm boy; he went to Purdue as an undergraduate and is well known in Washington.

We've got with us here this morning two real pros in agricultural economics, and I think that gives us an opportunity to talk about the farm policy challenges facing the next administration, even if we don't have anyone here from the next administration. And who knows, perhaps we do.

Now, wait a minute, I don't want anybody to misunderstand me. I'm leaving.

I'm going to move over and sit down here, I think, because I don't want to be presiding. I'd like to just kind of open this up for discussion, and see how it works.

There are a number of issues. One of the things that seems to come first to mind, because we read about it all the time, is the problem of the fiscal deficit. Because I gave you a little more advanced notice on this than I did Lynn, Bill, I'd like to ask you if you want to comment. Then, Lynn, you can fill in on this. To what extent do you think that the budget and deficit problems will affect the next administration's ability to shape farm policy?

MR. LESHNER: I personally think it'll have a significant impact. I think that we wouldn't have any changes in farm programs next year if it weren't for the budget pressures. I think, basically, farmers are fairly happy.

I think that the farm bill has been costly, but the costs have come down. It was \$26 billion in fiscal year '86, now it's around \$13 billion. People forget that, I think. My guess is -- and a lot of people say -- that we're going to have to get farm spending down to at least \$10 billion. If that's the case and you're at \$13 billion, you've got \$3 billion to save in some way, shape, or form. And that's going to drive changes in 1989.

SECRETARY LYNG: Lynn, what do you think about that?

MR. DAFT: Well, I don't disagree with Bill. I think we have a very interesting contrasting situation. If you look at agricultural policy today, the prominent features I see are, first of all, that we don't have to come

forward with legislation right away, though the budget might force it. That's not typical. The last few administrations have had to hit the ground running; they've had to be up on the Hill within a matter of days with a proposal. That isn't necessary this time.

You don't have a constituency demanding a change in policy; there are certainly no tractors across the street on the Mall. In fact, I would say most of the interests I'm aware of embrace the current policy.

Lord knows there are no campaign promises to keep, that I know of.

SECRETARY LYNNG: We'll get back to that in a minute.

MR. DAFT: Look at the post-election advice; there's always a lot of that. The most extensive report I've seen is the one that the American Agenda put together. I think I counted 137 pages. Of the 137 pages, less than half a page is on farm policy. There's no mystery as to why that's the case. All you have to do is look at the leading indicators, whether it's income or stocks or exports. Right on down the line, they look very promising. And so if I were a new administration coming in, I would look at all those things, and wonder why we should rush to put something in place.

I think that your question suggests that one of the things the incoming administration is going to face is to recognize that much of what happens to agriculture and to farm policy isn't going to be driven by those considerations. It's going to be driven by that larger picture, and that's primarily the deficit, and the trade imbalance. In dealing with the deficit, there are both risks and opportunities for agriculture. I think it could well be more than a matter of lowering costs for agriculture; I expect that there will be attention given to regaining greater control over those costs. So that suggests something more fundamental, I think.

So I'm in agreement with Bill, I guess, on this point.

SECRETARY LYNNG: Well, I think I'm in agreement with both of you. You cannot avoid having the problems of trade deficit and fiscal deficit intrude heavily upon the formation of agricultural policy in the new administration.

MR. LESHER: Well, if nothing happens, the Gramm-Rudman law takes over, and you're probably looking at \$35 billion coming out of discretionary programs, of which agriculture's portion may be 6 to 10 percent across the board. So if nothing happens, it's going to impact farm policy.

SECRETARY LYNNG: Yes, I think so.

I shouldn't be the one to initiate all of these things, but Lynn mentioned the trade deficit. We've heard from Clayton Yeutter on the trade negotiations. To what extent do you think the success of the trade negotiations themselves will affect the formation of trade policy? I've been saying in public statements that a failure to achieve some favorable agreements in the Uruguay Round could cause the Congress of the United States, and maybe the U.S. government, to take on a much more aggressive export subsidy program. Do you think there's any possibility of this?

Lynn, why don't you try?

MR. DAFT: Okay. I don't think so, to tell you the truth. I mean, I would bet against it. It's not that interest in using subsidies is going to suddenly disappear, but I am inclined to give greater prominence to what's happening domestically than I am what's happening internationally. That's not to say that the GATT negotiations aren't headed in a worthwhile direction, but I think it's the domestic view that sets the parameters. And I think the domestic view is in harmony with what we see happening internationally.

After all, we started down that road in 1985. I would argue that the primary driving objective of the '85 legislation was our attention to export markets and furthering our position in those markets. And I don't see that changing, though I do see our next debate over farm policy being a much more difficult one than we now think, because I think we're going to have to consider that objective and the trade-offs surrounding that objective more carefully.

So I don't really think that we are at risk on that count, Dick. That's my judgment.

SECRETARY LYNG: Bill?

MR. LESHER: I guess I share your view, Mr. Secretary, that it will be tough to come to some kind of satisfactory resolution in Montreal. And I guess I would agree with Lynn, but also disagree a little bit. I think that in coming out of the GATT round with no significant agreement, we'll keep some kind of approach to farm policy like that of the '85 farm bill -- and I think that involves the aggressive use of challenges to unfair competition. And I think that even could grow, to a certain extent. I think there'll be pressure to go for bilaterals. I think the U.S. will be under more pressure to remain competitive.

SECRETARY LYNG: What other issues are going to affect farm policy: water quality, air quality, agricultural chemical problems, food safety?

MR. LESHER: I think that you probably named them. People used to say, well, we had a 1985 farm bill. And probably 20 percent of the debate was on the environmental and other issues that you've just mentioned, and most of us weren't there.

And I think that in a new farm bill, probably at a least a third, if not more, of the debate will be on the very issues you've mentioned. They're issues that are not going to go away. The American people seem concerned about the safety of food; they seem concerned about chemical use on the farm; they seem concerned about the quality of groundwater. I think in 90 percent of the instances those concerns may be unfounded, but, still, that doesn't make any difference. They're concerns of the American people and they're going to be addressed in new farm legislation.

And I think from an agricultural viewpoint, the worry in Washington is that the pendulum swings from the left to the right, and it doesn't stop in the middle for a long time. If agriculture doesn't get into the fray, do the necessary analysis, and come to some kind of reasonable position, the pendulum in Washington may swing away from agriculture. That, I think, could cause great harm.

MR. DAFT: I would agree that the environmental issue is going to be a much more difficult one. The stakes are clear now and the interests, I think, are ready to discuss it rather intensively.

Other issues and challenges that I see ahead relate to replacing the '85 legislation from a commodity standpoint. I think the debate is going to be really intensive; the current tranquillity is deceiving. A lot of people are saying if it ain't broke, don't fix it. I'm not saying it's broke; I think the '85 legislation served an extremely useful purpose. But I think it has several defects.

As we get nearer to the time of that debate and we begin to see the dual personality that was put in place as we try to make a transition from a less market-oriented to a more market-oriented agriculture, we're going to have to choose whether we're going to make this legislation more market-oriented or we're going to allow the very substantial market interference now intrinsic in this legislation to remain.

So I see commodity policy as being a pretty hot issue for the next administration to handle, hotter than it appears now.

I would only add a couple of other ideas, and one of those has a political dimension: the relationship between the executive and the legislative branches. These are two entirely different creatures; they're motivated by different factors, they have different viewpoints, different deportment -- they're different in nearly every respect. Therefore, they have trouble getting along. And I've seen this from both sides, from working for the Congress and also working for the executive branch.

I think their failure to work together better results in poorer public policy than I would like to believe we're capable of. And although I would fault both sides, I think the initiative has to come more from the executive than from the legislature, given the nature of the operations. I think it's going to be a challenge for the next administration to quickly establish that sort of working relationship.

I think you, and I say this quite sincerely, Dick, have done an unusually good job at that. I don't fault the department, although the department doesn't always have control over how it relates to the Congress either.

The other issue I would mention has to do with the institution of the Department of Agriculture, and it relates indirectly to the environmental issues. Although the department has changed an awful lot -- all you have to do is walk down the hall and see it changing -- I feel that at its core its mission is still largely production agriculture.

And although USDA has broadened, I think it needs to broaden some more. It needs to internalize, as much as possible, the debate that relates to food and agriculture so that it will not lose its control over these issues to other parts of the government. I think that's been happening, but I'm not sure it's happened at the rate that I would like to see it happen.

SECRETARY LYNG: Well, I could argue with you about some of the things you said. The issue of the role of the Department of Agriculture with regard to

production agriculture is one that has been talked about a lot over the years, and I really still believe that the Department of Agriculture's primary function in agriculture is and should be, continue to be, in the area of production agriculture.

But, now, without neglecting that, you can take on additional roles, which I think we've done in becoming much more heavily involved in international trade negotiations, because that is absolutely essential today, compared to 20 or 30 or 40 years ago. And as we move along in that, we'll see that even our concerns about quality will have to change. Many times we've used the export markets as a place to get rid of lower-quality items. I think we're beginning now to realize that we perhaps should export our best quality in order to build customers and keep them satisfied.

Well, you've touched on a number of things. Bill, have you got any things you'd like to bring up? We're going to throw this open to questions here.

MR. LESHER: Why don't you throw it open to questions.

SECRETARY LYNG: Okay. I'm sure we've got some.

Dean, (Dean Kleckner) I see your hand's up already.

You can direct them to whomever you wish.

QUESTION: Just as the GATT round concludes at the end of 1990, the next farm bill will be written. If tradition holds, it will be written at midnight on the last day. Maybe some recommendations in the bill would impact domestic policies, no matter what the international agreement is. When you have that interplay, how will that affect the new farm bill?

SECRETARY LYNG: Well, let me take a crack at it, because I've been answering that question in other audiences.

I think it would be wise if Congress would defer or extend the current farm bill by a year and take it up in 1991, instead of 1990, provided that they can get it extended without rewriting the bill.

Other comments?

MR. LESHER: I think that there's probably four reasons why one could at least speculate there's a 50 percent chance we'll have a one-year extension of the bill in 1989. First, farmers are fairly satisfied, so I think they would probably go along with an extension. That would give you a year to digest what the GATT round is really going to do and to react to it.

Further, I think that any budget agreement the executive and legislative branches come up with is going to have to be for more than one year. I'd do it for two or three years. If you do that, you're making changes that go beyond the life of the current farm bill. That again would lead, perhaps, to an extension.

And, finally, you've got eight members of the Senate Agriculture Committee up for re-election. And if I recall correctly, the farm bills in '81 and '85 --

'77, I'm not sure -- were signed either on Dec. 22 or Dec. 23 of that year. That clearly makes it a tough time for eight senators on the Senate Agriculture Committee to run for re-election.

So my guess, Dean, is that there is at least a 50 percent chance that an extension will happen. And, as the secretary says, it would probably be in everyone's best interest, with his caveat.

SECRETARY LYNG: Lynn?

MR. DAFT: I don't have any clearer view than that. Two things strike me as being pretty important. One is the budget and how they resolve the budget; and you have a unique perspective on that. The other is the perception of the debate that's going to take place. The perception now, as I said before, is that it's not going to be a very contentious debate. If that perception changes, I think they're definitely not going to want to have to contend with that in 1990 and could extend.

SECRETARY LYNG: Another question.

QUESTION: Could the three of you do a little crystal ball-gazing? We've heard Dr. Yeutter talking about GATT and how it's the obvious thing to do. What happens if the Europeans agree and we get the GATT agreement; what happens to the U.S. farm sector? Do we see dairymen and cattlemen and sugar producers going out of business here; what changes will there be?

SECRETARY LYNG: Now, that's a tough question. We'll let you handle that one, Lynn.

MR. DAFT: I was sure you'd researched that thoroughly before you went to GATT.

SECRETARY LYNG: I have. I just want you to start answering it.

It'll be a beautiful world, John. It'll be a world in which comparative advantage will govern. And I have lots of faith that in the United States we're blessed with some of the things that will make it possible for us to maintain sufficient comparative advantage and that we'll have a healthy agriculture.

Now, there'll be a lot of changes. I'm not going to suggest to you that every commodity in every part of the country will be able to be produced competitively with the most efficient producers in the world. So you have to provide a transition term for this. You have to do it in such a way that you provide a period for people to withstand the change. But there have got to be enough pluses to more than offset the minuses.

Now, some of the major pluses in our proposal will be the kinds of things we'll do to help the developing countries of the world; the countries where most of the people live, where most of the people are poor, and where they need the opportunity for trade one way or the other. I think that if we open the world to trade, we can see a build-up of prosperity that will be particularly good for agricultural trade because there's not enough food consumption. There would be more if we improve the economics. And I think that therein lie the real benefits of this idealistic high ground that I talked about earlier.

MR. LESHER: I would concur with what you said.

MR. DAFT: I guess I would focus on the ramifications of what happens with domestic policy. Assuming that we have some success in GATT, I don't think we'll wake up one day and see sudden and dramatic changes. But we are going to see a continuation, and perhaps an acceleration, of adjustments under way.

No matter what happens with GATT, at stake with the next farm bill debate is that the adjustment isn't over. The worst of it's probably over, but some adjustment could still take place, depending on which fork in the road we take in 1990.

QUESTION: I'd like to ask Bill a question about the budget and the deficit again. You were talking about how we are likely to need another deficit reduction package this year in order to meet the Gramm-Rudman target, or else we'll have a sequester. Well, we had a deficit reduction package a year ago that cut target prices in 1989 and on 1990 crops. When does it stop? I mean, spending is down to \$13 billion this year; it should go lower -- all the projections show that. But the overall budget is not supposed to be balanced until 1993. At the rate we're going, we're not going to have any money left at all for farm program spending in the future if we have to cut \$3 billion, \$2 billion every year.

MR. LESHER: Well, I was stating the Gramm-Rudman law as it currently is written. And it simply says that in fiscal year 1990, the federal deficit should not be over \$100 billion. If OMB estimates that it's going to be over \$100 billion, there's an across-the-board cut, but many programs such as Social Security and feeding programs are not affected.

What it all boils down to is \$35 billion that comes disproportionately out of discretionary spending, and agriculture is it. I don't think we'll go that road; at least the House and Senate Agriculture Committees would not want to do that. Agriculture, I think, would be cut worse under that scenario than under some kind of negotiated settlement. So I'm not sure it would be as dramatic or as tough as you're suggesting.

In the end, the macroeconomic impacts on agriculture -- and that means deficits, taxes, inflation rates -- are the most important things for agriculture. Dick and I were here for the first four years of the Reagan Administration. That's when double-digit inflation took land values up to \$3,000 or \$4,000 an acre. And then agricultural assets went to \$1 trillion dollars.

Now, during that period of time, I think assets were reduced by at least \$200 billion and now \$300 billion. And that caused great pain and suffering in the farm sector that I hope we'll never see again, but the deficit and what we do is probably the most important. I think it's unrealistic to think that agriculture won't be touched, but I think we all hope it's not going to be touched to the point where farmers don't have any programs left.

QUESTION: Well, I just brought it up because everyone has said, generally, that the policy that is laid out in the '85 farm bill is working. But it appears that the budget will continue to cause target prices and loan rates to come down no matter what Congress does.

SECRETARY LYNCH: There's one thing that you need to think about a little bit, and I know you understand this very well. When you talk about the 1990 budget, you really are talking about the 1989 crop, because it's the program that we

have for '89 that will tell you what the expenditures will be in 1990. We've already announced the corn and feed grains programs, the wheat program, the cotton program, and, today, later this afternoon, the rice program and one or two other programs, I think.

Once you announce that for '89, it becomes an entitlement. You can't control the expenditures; it just depends upon what the acreage reduction and what the market turns out to be. But the die has been cast. So it's a very difficult fiscal management problem. If you try to make big changes quickly in agriculture, you have to look ahead.

MR. LESHER: Mr. Secretary, it's been interesting to me that the one recurring theme that I've noticed in the debate prior to the election and in some of the advice given has been on cost savings in agriculture. That's even at a time when CCC net outlays are being cut in half. It's clearly on people's minds.

Out of curiosity, I made a rough calculation the other day as to what kind of a CCC outlay would be required in real terms in 1993 if it hit the average of the decade of the 1970's, which was about \$3 billion. It's going to be about \$6 billion in '93 if we returned to the average of the 1970's, which was a pretty comfortable average.

SECRETARY LYNG: Yeah, that's right. But we're not likely to see that happen, even under the most austere conditions.

MR. DAFT: I think that most people think that if you get it down to \$10 billion you'd probably be lucky. But in defense of large spending, when one industry has lost \$300 billion in asset value in a relatively few years, and if that had happened in any other industry -- savings and loans or anything else -- you'd see a lot of money spent. And you did see a lot of money spent in agriculture, but the programs now are working; costs are down. So I think that, it's not as bad as the TV commentary would have you think.

SECRETARY LYNG: Any more questions?

QUESTION: Yes. It seems to me that the answer to the previous question, when somebody asked where will it stop if we go from \$13 billion to \$10 billion this year, is really zero. This is particularly true since we are looking at international trade and arranging to become non-subsidized and to function on the basis of competitiveness. We ought to set a goal of getting the program down to zero and say we're going to cut it \$1 billion a year for the next 13 years until there's nothing. And I'd like to hear comments on that.

MR. DAFT: I think there are legitimate functions of government and agriculture that enable you to justify some spending. And even the administration's proposal in the GATT suggests and allows, as Ambassador Yeutter suggested, some legitimate functions for government. I'm not saying that you should spend \$26 billion a year; you shouldn't. But I think there are certain areas where you can spend. Agriculture is an unstable business. What about weather? What about the macroeconomic factors? What if the value of the dollar goes up or down? That really affects farm exports and farm prices. I think there is some justification for some farm programs in order to stabilize a very risky and uncertain sector.

Would you disagree?

MR. LESHAR: Not at all.

QUESTION: I'll ask a follow-up question, I guess, with that. If we're talking about a possibility of \$3 billion in cuts, can you give us some specific ideas that are likely, as to where those cuts would come to raise about \$3 billion?

MR. DAFT: There's probably really three possibilities. One is to reduce target prices, one is to reduce the portion of the crop or the base, or whatever, that you pay the direct payments on, and I suppose the other is to increase the amount of acreage taken out of production to get the domestic price of farm commodities higher than they otherwise would be.

There used to be a fourth, and that would be to raise loan rates. But that would not really save any money now, since market prices really are, in most instances except for cotton, above the loan rates.

SECRETARY LYNG: How about one more question?

QUESTION: With respect to the CCC and the spending as a result of the drought, there's been some discussion about the possibility of raising the amount of grain in the farmer-owned reserve or grain storage. Do you think this will be an issue? And if so, how would you address it?

SECRETARY LYNG: I'd be happy to have someone else answer that. If they're going to advocate increasing the farmer-owned reserve, to help some successor of mine out, I'd urge them to have some easier way to get it out of that farmer-owned reserve than we have right now.

MR. LESHAR: Well, my own view is that the farmer-owned reserve, which was instituted in '77, I believe, has been mismanaged at certain times by all --

SECRETARY LYNG: Be careful.

MR. LESHAR: -- by both Democratic and Republican administrations, one of which you and I served in. And I think that I remember back in the embargo days the reserve was used for what I think were price support operations. Reserves should not be used for price support operations. That's the biggest mistake that people make.

I think the drought at least makes people recognize that there may be a legitimate need for reserve, but I think as Secretary Lyng is suggesting, that in past, at least, the release levels after you figure the interest in storage and everything else, are mighty high and not very useful. And they've done a good job using certificates and other devices to take some grain out of storage. But it needs to be made a little bit easier to serve the purpose you want to reserve for in tight supply times.

MR. DAFT: I don't disagree with that. I think the droughts have solidified support for a reserve, but drought is also viewed as an aberration. Now, if we have a drought next year, all bets are off. The view is going to change and probably change dramatically. But I think the fundamentals, the long-term fundamentals, suggest that we're going to have a very substantial supply; and, therefore, you probably don't have to augment that, at least in any major way. I guess by embargo you were referring to the soybean embargo or the --

MR. LESHER: No, the one in which a lot more wheat was placed in reserve after

--

MR. DAFT: I remember it well.

MR. LESHER: Do you remember it well?

MR. DAFT: I do. I remember the one that we had entry prices on the corn at \$2.90 and \$4.10 on wheat back in about '82, '83, too.

SECRETARY LYNG: I'd rather you didn't talk about that.

Well, I must say I think that our panelists here have done very, very well. They're supposed to be reactors to a talk that was not presented, and they've done a particularly good job.

We're coming to the end of this Outlook Conference. We appreciate very much the attendance and the interest and, really, the enthusiasm of all of the participants. We thank those of you who have been on the program, but also those of you who have been attending the sessions. Outlook Conferences try hard to predict what's going to come. We try that at the Department of Agriculture all the time, and I think we're probably as good at it as anyone else.

But I must inject a note of caution. It can be best illustrated, perhaps, by that old story about the day that a fellow from the city was visiting a dairy farm and he noticed that all of the cows were lying down in the pasture. And he asked the dairy farmer why the cows were lying down, and the farmer said, "Well, cows are smart, they know that it's going to rain and then they lie down in the field." And the farmer went on his way and the city fellow thought a while and then he came back and said, "Now, you know, sometimes I see a field in which half the cows are lying down and half of them are standing up. How about that?" And the farmer said, "Well, in that case, half of them are wrong."

You might just keep that in mind.



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**FARM POLICY CHALLENGES
FACING THE NEXT ADMINISTRATION**

Lynn M. Daft
Vice President
Abel, Daft & Earley

As a new administration prepares to assume office, attention in Washington turns to assessing the policy agenda that lies ahead and to identifying those issues that will provide the administration with its first test. For a variety of reasons, farm policy appears to be an unlikely candidate for inclusion on a list of the most pressing policy issues of the day.

- o For the first time in many years, an incoming administration will not be confronted with the need to prepare its position on replacement legislation for an expiring farm bill within days of assuming office. With the Food Security Act not expiring until 1990, the administration should have at least four or five months to begin forming a position on the next farm bill.
- o There are few if any calls from the farm constituency for major changes in farm policy. To the contrary, most farm interests are quite comfortable with current policy and favor its continuation.
- o If the recent Presidential campaign was noted for anything, it was for the nearly total absence of substantive commitments on domestic policy issues like agriculture. It is therefore unlikely that the new administration will be entering office with a farm policy agenda of its own that it is anxious to pursue.
- o Even the post-election advice has been sparse in its attention to agriculture. For example, of the 138 pages of the cogent commentary and advice in the American Agenda report that was delivered to the President-elect last week by former President's Ford and Carter, less than one-half page was devoted to farm policy.

There is no particular mystery in why it is so quiet on the farm policy front. In comparison with the instability of the 1970's and the stagnation of the first half of the 1980's, the farm economy of the past three years has looked very good, indeed. Trends in nearly every major indicator -- farm income, farm exports, carryover stocks, asset values, farm debt, even program cost -- have been favorable. Whether current policy is responsible for this improvement or not, it is given much of the credit.

The relevant question in looking ahead is: Does the experience of the past three years offer a reliable forecast of what can be expected in the future under a continuation of present policy? I believe that the answer to this question is: "probably not." It is within the circumstances surrounding this answer that the new administration can expect to confront its greatest farm policy challenges. I discuss five of these challenges in the remainder of these comments.

Recognition of the Need for a Policy Correction

The first challenge for the new administration will be to recognize that the tranquility of the present farm policy scene reveals more about the past than about the future. Some difficult and contentious farm policy decisions will have to be made in 1990, if not sooner. The current state of relative calm, coupled with the goodwill and curiosity that surrounds the election of a new President provides the new administration with an auspicious opportunity to begin laying the intellectual and organizational groundwork for dealing with these issues. It is an opportunity that they should take full advantage of.

Recognition of the Limits of Farm Policy

Much of what happens to farm policy and to the economic environment of the farm sector in the future, as in the recent past, will be driven by forces outside agriculture. Decisions on overall Federal spending, taxation, domestic monetary policy, trade policy, and foreign debt problems will continue to effect farm sector performance at least as much and probably more than will farm policy itself. This is another reason why satisfaction with current farm policy is somewhat irrelevant in looking to the future. For the most part, these larger decisions will be made apart from the making of farm policy and quite irrespective of their implications for agriculture.

As in past years, the primary focus of these larger efforts will be on how to deal with the budget deficit and the trade deficit. Both have important implications for the farm sector, of course. Actions to reduce the trade deficit (assuming they entail efforts to liberalize the terms of trade and to enhance U.S. competitiveness) should be beneficial to the farm sector, overall. Those commodities that are protected from foreign competition will be at greater risk. Efforts to reduce the budget deficit could and probably will be disruptive. They will almost certainly result in a reduced level of deficiency payments, as the commodity programs are scaled-back in conformance with cuts in other domestic programs. In addition, there is a growing possibility that changes will be made to establish greater control over farm program costs and this would have implications far beyond the next year or two.

In summary, therefore, the challenge to farm policymakers in the next administration will be to determine how best to design and execute farm policy in an economic setting shaped by forces largely beyond their control.

Replacing the Food Security Act of 1985

Design of replacement legislation for the Food Security Act when it expires in 1990 is going to represent a third challenge to the next administration. Performance of the farm economy up to the present time has largely concealed the shortcomings of current policy. The more serious of these faults trace from the schizophrenic nature of the policy as it was framed in 1985. In an effort to dramatically improve U.S. competitiveness in world markets while at the same time protecting farm income during a period of severe financial stress, the 1985 policy contains elements that are "market-oriented" and others that are "market-disruptive". As a temporary transition through a difficult time, such a "dual personality" is both understandable and workable.

But over time the contradictions and inconsistencies that are inherent in this policy have begun to impede accomplishment of its principal objectives. And with the passage of time these problems will multiply. Producers are sent one set of signals while consumers are sent another. Producers of different commodities are sent different signals depending on the terms of their programs and the relationship of support measures to costs of production. In exercising his discretionary authority over the commodity programs, the Secretary of Agriculture must choose between holding down budget costs and expanding exports.

If such contradictions are to be resolved (as they need to be), the next administration and the new Congress must confront a difficult set of tradeoffs. With the larger national agenda moving swiftly in the direction of increased budget-savings and greater competitiveness in export markets, the die would appear to be cast in the direction of an even more market-oriented farm policy. While there is considerable merit in this course, pursuit of this policy will likely result in a period of continued economic adjustment for the farm sector.

Relationship With The Congress

A fourth challenge for the next administration will be in fashioning an effective working relationship with the Congress. While this is largely procedural, it can and will have a major impact on policy and policy implementation. By their nature, the Executive and the Legislative are very different institutional creatures ... different in organization, in purpose, in scope of viewpoint, in deportment. The fact that these bodies are now controlled by different political parties adds to their dissimilarity, but is probably less important than the more organic sources of difference.

Given their many differences, it is little wonder that these bodies have traditionally had difficulty working together. Lacking any very high degree of trust in or respect for the other, each has tended to go it alone. The effectiveness of the process and the quality of policy has suffered as a result. While it might be considered idealistic to expect any significant change in the nature of this relationship, even marginal improvement would be welcome.

While both branches can be faulted for these past shortcomings, the greater burden of responsibility for correcting the problem would seem to rest with the Executive. It is better organized and staffed for the purpose of providing needed direction. Thus, another challenge before the next administration will be to reach an accommodation with the Congress early in its term of office that is based, to the maximum extent practicable, on a mutual recognition and respect for their individual roles. This will be helped if the administration will avoid basing its positions on ideological grounds and will instead concentrate on marshalling substantive evidence and provide a rallying point for the coalescence of diverse interests.

A New Role for the Department of Agriculture

There is also an institutional challenge awaiting the next administration. In its 126 year history, the U.S. Department of Agriculture has served as the institutional home to a broad array of public purposes. In the process, the Department has undergone substantial change. The nature and scope of its mission has broadened. The variety of skills and technical sophistication of its staff have grown. Still, despite all the changes that have occurred, at its core it remains a department of production agriculture.

For the good of the agricultural sector as well as the nation, this should be changed. There are many dimensions to our nation's food and agricultural system. And while the economics of farm production must remain a central element on the Department's agenda, a number of other interests deserve comparable representation. Environmental issues, soil and water conservation, nutrition and health, food safety, domestic food assistance for the poor, consumer economics, agribusiness, international trade and development, and world hunger relief are examples of these interests, each with a legitimate agenda that deserves to be vigorously and effectively represented within the Department.

It is recognized that institutional change rarely comes swiftly. That is another reason why such change requires continuing attention and encouragement. There are other drawbacks to expanding the Department's role. It would, for example, result in a more contentious, more disorderly Department, one that would be substantially more difficult to administer. However, it would also be more vital and more reflective of the world we live in. Furthermore, if the Department is slow to act in internalizing these competing interests, it risks a gradual loss of control over key elements of public policy related to food and agriculture ... a process that has already begun.

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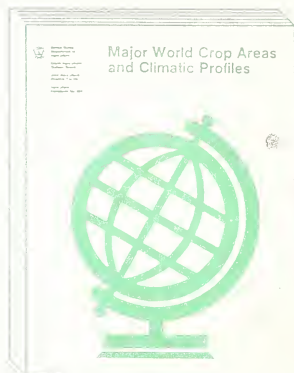
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